HEARD IT THROUGH THE GRAPEVINE: ANDEAN AND EUROPEAN CONTRIBUTIONS TO SPANISH COLONIAL CULTURE AND VITICULTURE IN MOQUEGUA, PERU

By

GREG CHARLES SMITH

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To Alice, who taught me about wine,
and in memory of Marvin

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By

Greg Charles Smith

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Chair: Prudence M. Rice
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This is an archaeological study of the bodegas, or wineries, established by the Spanish in Moquegua, Peru, beginning in the late sixteenth century. The adobe ruins of 130 of these sites have been located within this small, desert valley and attest to the importance of wine during the Colonial Period. Viticulture was introduced in several Peruvian valleys along the coast to supply wine for both religious and everyday use. In the Moquegua Valley, grapes were so important as to constitute a monocrop during the Spanish Colonial era, and the wine industry provided an opportunity for interaction and acculturation between the indigenous and intrusive cultures. Historical and archaeological data on Colonial cultural formation in Peru, which form the basis for this research, have been largely unstudied to date.

Twenty-eight sites were tested archaeologically to determine the nature and extent of deposits at each, and to provide a preliminary view of material culture in the valley as a whole. Four bodegas that held potential for uncovering early Colonial remains were subsequently excavated, and recovered data were interpreted using Early (1580-1600), Middle (1600-1778), and Late (post-1778) temporal distinctions. Results indicate that Andean and European trait admixture contributed to the production of domestic- and industrially-related material culture, and that Hispanic artifacts were rare. This pattern suggests a great deal of miscegenation and/or transculturation was taking place, and is interpreted as an adaptive response to relative isolation, restrictive trade laws, and lack of access to high status imported goods. Acculturative influences appear to have been strong from both groups, due in part to the highly developed economic and technological elements of Andean culture over which the Spaniards took control. After 1778, when a policy of comercio libre was announced by Spain, the valley was inundated with European products, which reflect the broad economic changes that accompanied Peru's Independence and the Industrial Revolution.

CHAPTER 1
INTRODUCTION

Statement of Purpose

The primary goal of this study is to assess the influence of both European and Andean culture in the formation of Spanish Colonial culture in southern Peru. Archaeological data were collected from the adobe ruins of wineries found throughout the Moquegua Valley of southern Peru, and were analyzed and interpreted within the context of the known history and archaeology of the Spanish Colonial Period. Extensive archaeological research in the circum-Caribbean region has suggested that acculturation in the Spanish colonies was influenced largely through gender-specific labor activities and Spanish concerns regarding social visibility. The incorporation of indigenous adaptive practices, goods, and technology is seen to have been based on adherence to a highly structured set of pre-existing precepts with regard to retaining "Hispanicity," but implemented simultaneously with a high degree of flexibility and accommodation to a range of local, indigenous conditions related to ecology, economy and local inhabitants (Deagan 1983:263-271). This research is an attempt to investigate this flexibility and accommodation in a previously uninvestigated area of Spanish Colonial settlement located in a region of environmental extremes, the southern Andes.

In the coastal desert valley of Moquegua in far southern Peru, where a wine industry was introduced by the Spanish during the sixteenth century, it

is possible to reassess this proposition and the larger issue of acculturation under conditions vastly different than those present in the circum-Caribbean (South 1981; Deagan 1983; Smith 1986; Ewen 1987; McEwan 1988; and others). Andean ecology is characterized by stark environmental contrasts, which, in pre-Colonial times, led to the development of complex economic strategies with regard to trade, labor, and resources. Owing to isolation, trade restrictions, and the complexity of pre-existing Andean features, Spanish Colonial adaptations in Moquegua were expected to reflect a much greater flexibility and accommodation with respect to the incorporation of local goods, technology, and practices during the early years of Spanish acclimatization, and an increased degree of subsequent trait admixture than has been noted in previous studies.

Physical Setting

Research for this study was conducted in the Moquegua Valley of far southern Peru (Figure 1.1). The Republic of Peru is situated on the west coast of South America, and is bordered on the north by Colombia and Ecuador, on the east by Brazil and Bolivia, and to the south by Chile. Peru's inhabitants live in three well-defined areas: the narrow and arid coastal lowlands, the high sierras of the Andean mountain chain, and, to the east, in the vast expanses of forests and jungles through which great rivers flow to the Amazon River. Although the country lies entirely within the tropics, climates and temperatures vary distinctively with regard to altitude. In the eastern lowlands, rainfall is heavy and the climate is warm and tropically humid, while in the mountainous region temperatures range from temperate to frigid. The climate in the study area along the western Pacific

Figure 1.1: Location Map of Southern Peru and Moquegua

coast is extremely dry, with equable moderate temperatures throughout the year.

The Moquegua Valley is a 28 by 1.5 kilometer strip of land that comprises the midsection of the Osmore River drainage, located in the Department of Moquegua in far southern Peru. The Osmore drainage runs along the northern edge of the Atacama Desert, and represents one of several rivers that carry highland runoff across the coastal desert of Peru from the western slopes of the Andes. The Atacama Desert is the driest coastal desert in the world, receiving an average of 1.7 milimeters of moisture each year. Significant rains occur only in association with strong El Niño climatic events, while thick, coastal fog (which contributes the bulk of the yearly moisture) does support scattered <u>lomas</u> vegetation on hillsides. Due to the lack of moisture, cultivation depends almost entirely on irrigation, using highland runoff and spring-fed river drainage which crosscuts the coastal strip.

The Moquegua valley represents the only extensive arable lands in the Osmore drainage, lying near the confluence of the river's three tributaries--the Huaracane, Torata, and Tumilaca--at 1000-1700 meters above mean sea level. Moquegua, which was founded in 1541, is the principal town in the drainage, the department, and the valley, and is situated at 1366 meters above sea level, at 17° 11' south latitude and 70° 56' west longitude. Adobe ruins of the <u>bodegas</u>, or wineries, that are the focus of this research, are found scattered throughout the valley (Figure 1.2).

Streets in the downtown area of Moquegua proper are constructed in a grid pattern, with several smaller plazas located at varying distances from the central Plaza de Armas. A number of Colonial structures and remnants thereof exist near the town center, and many occupied homes bear visible

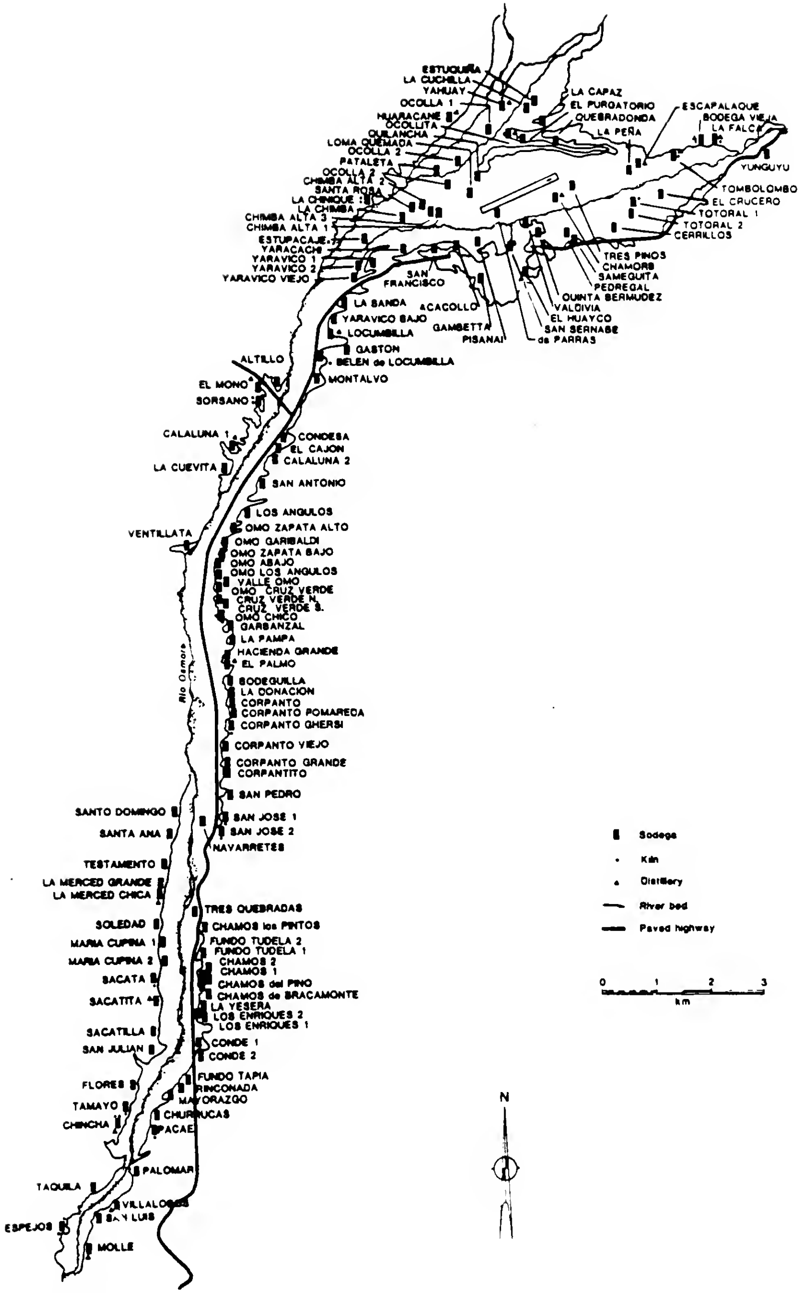

Figure 1.2: Map of 130 Bodegas Recorded in the Moquegua Valley

dates from the 1800s. The 1972 census puts the number of Moqueguaños at 18,621 persons, which reflects a valleywide count (Kuon Cabello 1981: 463). Highway distances from Moquegua to several towns and cities are as follows: to the capital at Lima 1,377 kilometers; to Arequipa 420 km; to Puno in the highlands 393 km; to Tacna 170 km; and to the ports of Ilo and Arica, 168 and 226 km, respectively (Carvajal 1987:25).

Peru and Its Role in the Spanish Colonial System

Isolated from the Iberian Peninsula in terms of distance, Peru was indispensable to Spain due to its riches in silver bullion. The mine at Potosí (in present day Bolivia), which was established in 1545, financed much of Spain's expansion in the New World. Under the direction of the Spanish, the Andean economy was shifted from a pre-Colonial focus on internal surplus production to a two-tiered Colonial export economy centered on silver. During the sixteenth and seventeenth centuries the focus on bullion extraction and export was primary, while a necessary component in making that possible was basic subsistence, which for the Spanish included wine.

In order to obtain labor for their enterprises, Spanish colonists had recourse to three institutions: slavery, encomienda, and repartimiento (Kirkpatrick 1939:372-379). The first of these, slavery, was familiar to the Spanish, having sold into enslavement the entire population of the Canary Islands during the fifteenth century. While Queen Isabela strictly forbade the enslavement of Christianized natives or those who appeared to be on the road to conversion because it would be "a great burden on our royal conscience," illegal bondages still occurred in the early years of settlement (McAlister 1984:63).

Somewhat less drastic than outright slavery were the institutions of encomienda and repartimiento (Kirkpatrick 1939). Following the earliest years of conquest, encomienda grants, in the form of a specified number of residents of a particular area, were awarded to meritorious Spaniards and provided virtually unrestricted right to the goods and labor of those individuals. Although the number of encomenderos was never large in Peru, the encomienda was particularly important, and grants were awarded as recompense for the invaluable services rendered by the conquistadores. These grantees first utilized indigenous labor for the extraction of mineral wealth in the form of silver bullion, and in the production of subsistence goods to keep mining and colonization efforts running smoothly. After less than a decade, however, the Spanish Crown felt it necessary to curb the exploitation of the Indians and strengthen its own authority. The New Laws of 1542 forbade personal service under the encomienda, and stipulated that existing grants revert to the crown with the current holder's death, rather than remaining in the family (Morner 1985:33; Burkholder and Johnson 1990:110-111). Rebellions over this change in policy, and the killing of Peru's first Viceroy by powerful conquistadores, were brought to an end in 1554 (Morner 1985:34).

Repartimiento was an institution that followed that of encomienda, and served as a less harsh system of labor extraction. The term repartimiento was used as a general term to denote the division or distribution of anything: lands, housing, goods, services, or taxes. Most importantly, it refers to the allotment of Indians for necessary tasks in the Spanish community such as mining, construction, agriculture, or transport. The need for such large expenditures of labor varied throughout the colonies, and greatly influenced the nature and character of Indian/Spanish interactions (Deagan 1985).

In order to accomplish their goals in Peruvian mining and related subsistence, the Spanish introduced controlling mechanisms such as encomienda, repartimiento, and reducción very early, while retaining a modified form of the Andean mita system of labor extraction. The mita was one of a number of institutions that arose within pre-Inkan states and polities, most notably service to the state in varied forms of obligatory labor, that provided a structure for economy and society into which the Spanish were able to tap. Between the years 1539-1600, administrative towns were set up and land was apportioned among Spanish settlers in the towns, and small holdings in grapes, sugar, and foodcrops were worked using labor provided by encomienda Indians and, in some areas, Africans.

In addition to land and labor, Spaniards took over the rights of access to strategic resources such as water, trade routes, and irrigation systems. Success in making efficient use of these farflung Andean assets was made possible through arrangements with local lords, or kurakas. Kurakas, or caciques as they are called elsewhere, were indispensable tools used by the Spanish in the early years of Andean settlement, and represent another economic resource of which the Spanish availed themselves.

Beginning in the late sixteenth century, significant modifications occurred in the labor system in Peru that would have lasting socioeconomic effects. Large encomiendas were taken over by the Crown, and repartimiento Indians were largely absorbed into settler towns. This decline in repartimiento Indians was hastened to a great extent by the miscegenation of Spaniard and Indian, since anyone who could claim biological mixture was released from tribute payment and mita labor draft service (Faron 1985:22). These ex-tributary indios became part of a large rootless population referred to as yanaconas (sharecroppers), who worked for Spanish settlers in and around

towns. When the intensity of mining activities dwindled in the seventeenth century, the Colonial economy shifted to agriculture, haciendas proliferated, and the demand for yanacona families increased. Regardless of whether or not biological mixture took place, those who settled on a Spanish estate and became yanaconas experienced a cultural and legally-defined transformation from mitayo laborer to sharecropper. Under these conditions, the stage was set for associated social, political, and economic developments in Colonial Peru that would lead the way to the Independence movement of the first quarter of the nineteenth century and the development of a Latin American culture that endures today.

Peruvian Historical Archaeology

It is illustrative to note that in a recent overview of Peruvian archaeology (Burger 1989) no mention was made of studies that focused on the Colonial Period in Peru. Although substantial progress has been made towards a better understanding of Peruvian prehistory, Burger states, archaeology in Peru is still in its infancy (1989:57). This same statement is especially true with respect to archaeological studies of the historic period (Schaedel in press). It is an understatement to say that the artifacts of Colonial Peru are not well known, and, to many, their potential to broaden our understanding of culture is clearly misunderstood and underestimated (Ash 1990).

With a few exceptions (Beck et al 1983; Lister and Lister 1974) historical archaeology in Peru has tended to focus on religious structures, palatial residences, and government buildings from the Colonial Period. To date, the majority of historical archaeology studies in Peru have been very descriptive, concentrating mainly on the documentation of historic structures and the

gathering of information on building materials and construction techniques. A good deal of important research has been undertaken under the sponsorship of the Insitituto Nacional de Cultura (INC), which makes available a number of reports on investigations (Cornejo 1983; Oberti 1983; Gonzales and Massa 1983; Paz 1983; Bonnett 1983; and others).

The Convento and Catacombs of San Francisco have been the site of considerable archaeological work. Located in Lima, this Colonial religious complex has been investigated by a number of INC archaeologists and historians, including Dr. Hugo Ludeña, Dr. Lorenzo Huertas, and Arq. Marcelo Arroyo. Multidisciplinary research at this site has focused not only on the restoration of a historic landmark, but has also worked toward interpreting its role in the life of Colonial Lima.

As yet, however, historical archaeologists in Peru have not documented Colonial artifact assemblages in a manner suitable for comparison, nor have they investigated the respective Andean and European contributions to Colonial culture. One of the rarely stated goals of Peruvian anthropology and archaeology has been the forging of a shared national identity and the strengthening of patriotic sentiment (Burger 1989:37-8). It is hoped that historical archaeology can be viewed as adding positively to this sense of identity through a better understanding of the multiple components of modern day Peruvian culture, while contributing at the same time to a broader understanding of Spanish Colonial cultural formation.

The Study of Acculturation in Colonial Peru

The archaeology of the Spanish Colonial experience in South America as a whole has only very recently been addressed by Schaedel (in press). According to Schaedel, it behooves us to adequately consider the

demographic, socioeconomic, and ideological complexity of the societal structures with which the Spanish came in contact, without which the Spanish enterprise has no appropriate context. Such factors have great bearing on the success or failure of cultural amalgams (Arnade 1960). In discussing "researcher biases" that tend to ignore, or overlook, the contribution of indigenous peoples to the formation of Spanish Colonial culture, Schaedel cautions against placing an overemphasis on things Hispanic. In a setting such as the Peruvian Andes, where the ecological realities of economic life pervaded many aspects of pre-Colonial social and political life, such a warning is particularly appropriate. The highly developed culture that was adapted to meet the needs of the Spanish in Peru was a resource as valuable as the silver bullion itself. It is expected that the results of the present research will reflect that profound Andean contributions were made to the new Spanish culture of Colonial Peru.

The term "Spanish culture" is used here for convenience and is meant to include the sum total of the actions, artifacts, and behaviors which make up the daily life of individuals of Spanish descent as well as those within the sphere of Spanish Colonial interaction. These features of culture are inseparable and, according to Defourneaux (1979:45), are based on two elements that are opposed to each other but at the same time are intimately bound together in the Spanish soul--idealism and materialism. While both of these elements may be expected to vary with regard to the regional origin, class, and gender of individual Spaniards, Defourneaux views an unbridled passion for both the things of heaven and for worldly goods as the foundation of the national temperament (1979:144).

Braudel (1973) is in general agreement with a two-sided interpretation of culture, citing material life and economic life as the distinct, yet mingled,

component parts of human culture. He is concerned with studying constants over long periods of time in connection with the makeup of socioeconomies, not societies--food, plants, clothes, houses, and the very old and vital division between town and country. Material life, for Braudel, is concerned with basic necessities, while economic life represents a wider radius born of trade and transport, differentiated markets, and contacts of many kinds (1973:442). Historical archaeology provides a means for investigating the economic and material aspects of the Spanish Colonial settlement of Peru. Study of the bodegas provides an opportunity to examine both industrial and domestic aspects of material culture, and the potential for insights into how indigenous men and women may have participated in acculturation.

Economic life in Colonial Peru was composed of features from both Andean and European culture, and it is expected that cultural admixture will characterize the archaeological remains of material life as well. As discussed previously, the primary goal of Spanish settlement in Peru was the extraction of bullion for export. This system was supported by a number of satellite industries for the subsistence support of the Colonial population. Both of these economic components were aided in their success by pre-existing Andean economic features related to long-distance exchange, irrigation agriculture, and labor extraction, which were taken over and adapted to meet the needs of the new Spanish Colonial society.

The archaeological data discussed in this study were excavated at the ruins of the bodegas, or wineries, that were established in the Moquegua Valley by the Spanish beginning in the late sixteenth century (Figure 1.3). Twenty-eight sites were shovel tested and analyzed, which provided information on the layout and use of each site, as well as an inventory of Andean and European artifacts found within this isolated valley. Subsequent

Figure 1.3: Locumbilla (top) and Chincha (bottom) bodegas

excavations at a sample of four of these sites clarify the preliminary view gained from testing, and provide a means to identify change and trait admixture in the material assemblage through time. Through this investigation we may come to modify our thinking somewhat with respect to acculturative influences, and the ways and instances in which new cultural elements are incorporated.

The chapters that follow provide historical and archaeological background for this study, and detail the methodology and results of fieldwork. Chapter 2 discusses Spanish and Andean socioeconomic factors that are pertinent to the development of Spanish Colonial culture in Peru. Also included is an assessment of the resultant features that characterized Peru's Late Colonial and Republican Periods. The chapter concludes with a brief discussion of Spanish-inspired viticulture in the New World, and a summary of efforts to date in the investigation of the wine industry in Moquegua.

Chapter 3 is an overview of anthropological and archaeological research focusing on acculturation that has given theoretical direction to this study. Results from these studies are synthesized in order to set forth some expectations for testing using the Moquegua data. Chapter 4 follows with a description of how field and laboratory strategies are used in gathering information from bodega sites and in translating material culture data into results bearing on acculturation.

Chapter 5 describes the 28 wineries in Moquegua that were shovel tested and includes plan maps of structures and excavated tests at the sites. Artifactual data are presented in tabular form by site, followed by a synthesis of overall results and perceived artifactual patterns. Chapter 6 is a descriptive and technical narrative that details follow-up excavation strategies at four

sites--Locumbilla, Chincha, Yahuay, and Estopacaje--and presents general interpretations of site formation processes, dates of occupation, and degrees of disturbance at each. In Chapter 7, the actual results of excavations at the four sites are discussed. The concluding chapter summarizes research findings and suggests directions for future investigation.

CHAPTER 2
HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

In order to understand Andean and European contributions to Colonial culture in Peru, it is necessary to assess the heritage brought by first generation Spanish settlers as well as that of the Andean culture that preceded them. Ideas, institutions, and experiences from both groups, with regard to the physical and social world, combined to produce the Colonial foundation for Latin American culture as it exists in Peru today. Additionally, the far-reaching policies of Spain and the fluctuations of a developing world economy had important effects on Peru and on many socioeconomic facets of the post-1500 world (Wallerstein 1974; Wolf 1982).

In Peru, the Spanish were able to take control of a powerful realm from the Inka, who had built an empire on ancient Andean traditions of institutionalized labor obligations, effective resource utilization, and long distance trade. Spanish Colonial efforts were twofold, including both an export economy based on silver and an internal system that filled subsistence needs. Attempts toward economic self-sufficiency within the colony included the introduction of familiar plants and animals, which was facilitated to a great extent by similarities in soil and climate shared by Spain and Peru (Whitaker 1929). In terms of receiving products from Europe, however, factors including isolation, irregular communication, and high freight rates combined to limit a steady supply of European products into Peru until the late eighteenth century (Brading 1987:136-137).

This chapter addresses aspects of both European and Andean cultures as they relate to Colonial development in Peru, including economy, society, and labor. Following a brief discussion of Spain prior to 1492 and a treatment of Peruvian prehistory and history, aspects of the late Colonial and Republican Periods in Peru are discussed. Subsequently, a discussion of the role of grapes and winemaking in the Spanish colonies is presented as an introduction to specific archival and secondary source information that pertains specifically to Moquegua. Finally, a brief description and explanation of the structures, features, and operations associated with the Moquegua bodegas is given.

The Old World Setting

Spain makes up about five-sixths of the Iberian Peninsula, and consists of three different topographic zones: mountains, high plateaus called mesetas, and coastal plains. The low-lying plains are associated with short rivers that combine to provide areas of fertile soil that are important centers for agriculture (Foster 1960:21). Interior rivers tend to be short and are not used for transportation; many good ports are present along the coasts, however, that are associated with larger rivers and overland routes to the interior.

The mountainous regions of the Iberian Peninsula are rugged and are said to have made inter-regional travel by land extremely difficult (Braudel 1973:309; Lynch 1969:143-145). Spain's highest mountain peaks are located in the southeastern part of the country at about 3,500 meters. To the north at approximately 3000 meters are the Pyrennees and Cantabrian ranges, which are comparable to the Alps in elevation (Fisher and Bowen-Jones 1958:19). The Iberian Mountains and Central Sierras range from 1000-2000 meters, with the latter serving to split the meseta, or tablelands, into two enormous

upland basins (Way 1962:12). The dry, well-drained soils that characterize this region and its margins are especially well suited to viticulture and olive production (Way 1962:124; Fisher and Bowen-Jones 1958:51-52).

Climatic conditions vary with these topographic variations and display a great deal of regional diversity. In terms of rainfall, the north and west zones receive as much as 175 centimeters a year, while the more arid eastern and southern areas receive as few as 13 centimeters annually (Fisher and Bowen-Jones 1958:34). In spite of the warm seas that surround Spain, winters are cold and snow is a common feature throughout the country.

Diversity in geography and climate combine to produce rich vegetation in Spain, although some distinct changes through the centuries should be noted. The southern part of the peninsula was once thickly forested, providing timber for export and ship-building by Romans, Moors, and Spaniards (Way 1962:78). Similarly, the uplands were once a forested region that was cut, burned for pasturage, and subsequently over-grazed by sheep and goats. This latter change in vegetation occurred during the sixteenth century in association with the wool trade (Vicens Vives 1969:303).

Variation in climate and soil encouraged the growth of a wide variety of plant crops in Spain. In addition to viticulture and olives, the meseta region was capable of producing cereal crops such as barley, oats, and wheat. Vegetable crops were grown throughout the fertile pockets of Spain, including alfalfa, chick-peas, lentils, onions, asparagus, carrots, and spinach (Fisher and Bowen-Jones 1958:51-53). Crops suited to the warm, well-watered areas of the south included more tropical species such as bananas, figs, oranges, lemons, pomegranates, date palms, and sugar cane (Foster 1960:24; Fisher and Bowen-Jones 1958:50-51).

By the latter part of the fifteenth century, Spain's interest in the acquisition of exotic goods and in the commercial potential of wool had grown considerably. Trade contacts had been made with other countries and continents that brought silks, spices, gems, fine cabinet woods, and other luxuries to Spain and foretold the riches that could be had by finding and transporting new products. Tales from explorers such as Marco Polo inspired the ambitions of both monarchs and middlemen, who were soon to venture in search of new opportunities. Of those that lay ahead, perhaps none was as potentially profitable as the silver to be found in Peru, on which Spain would ultimately become dangerously dependent (Elliott 1987:97).

Spain in the Americas

Prior to the first voyage of exploration, Spain had achieved victory over the kingdom of Granada, the final stage of its reconquest of the Iberian peninsula. This Reconquista had begun during the eighth century A.D. and represented a centuries-long battle by small Christian kingdoms fighting the Muslim inhabitants of Spain, the Moors. For most of its duration, the Reconquista was motivated by a desire for new pasturages and agricultural lands (McAlister 1984:3-4). The expansionist policies that developed in Spain during the late fifteenth century appear to have been an outgrowth of this long crusade. Before the close of the sixteenth century, Spain had been transformed from a country with limited ties to agriculture, industry, and trade, into the primary agent of conquest and colonization in a "new" world.

After the 1492 landing in the Americas (Morison 1942; Sauer 1969), Spanish conquest and settlement of a vast territory was undertaken by the Crown and its subjects. The political union of the several independent realms of the Iberian peninsula and the final expulsion of the Moors after 700

years of intermittent warfare had brought on a sense of providential destiny, military supremacy, and religious zeal. Exploitation of a new part of the world provided a focus for this newfound confidence, and for the material, military, and religious ambitions of the newly consolidated Iberian nation (Elliott 1963, 1970; Kennedy 1987: ch. 2; Sauer 1969).

Two decades after the initial discovery of the Americas, Spain had acquired the major part of the Western Hemisphere, having moved rapidly to secure the treasure of the Indies and draw imaginary lines around its possessions (Salmon 1971; Wolf 1982:ch. 5). During this same time, European political and economic struggles shifted from what had been primarily regional conflicts to larger, global concerns. Traditional rivalries were amplified and grew into an international contest for mastery of continents and power. By the mid-seventeenth century it was clear, however, that no single dynastic bloc was capable of becoming the master of Europe, as had appeared possible during previous decades (Kennedy 1987: 31).

Perhaps the most successful attempt at large scale colonization was undertaken by Spain under the Habsburgs (Lynch 1969). For about a century and half after 1500, members of Spain's Habsburg family threatened to become the predominant political and religious force in Europe. The heir to much of this maneuvering proved to be Charles V, who in 1519 became Holy Roman Emperor and ruler of the hereditary Habsburg lands. These holdings increased still more and placed the Habsburgs in an unequaled position, having amassed a number of new territories through marriage, inheritance, and the discovery and control of much of what was known as the New World. Kennedy (1987: ch.2) details the countless military struggles in which the Habsburgs participated during 1500-1650, noting that although they had no intentional plan to dominate Europe they might have done so if they had

been more successful in meeting their goals of exploration and defense. Specifically, the economic bases on which settlements depended were not uniformly successful or capable of providing self-sufficiency.

Colonial ventures on the island of Hispaniola, in La Florida, and in Mexico, for example, met with variable success and are discussed briefly here as comparative background. The earliest settlements in the Antilles were set up with the primary goal of acquiring gold (Bourne 1904:44), although the location of the region in the path of the North Equatorial Current and the Northeast Trades was also a big factor in bringing Columbus and other ships to the area (Jones 1936:17). Early Spanish colonizing efforts focused on many islands in the Caribbean, with Hispaniola serving as a stopping off point for traders and supply ships between Spain and the colonies. After the gold quest proved unproductive, indigenous servitude continued in relation to cattle raising, tallow and hide production, sugar cane farming, and various domestic activities (Sauer 1969; Lyon 1981). Although these pursuits were successful, the emphasis on colonization gradually shifted westward, and the Antillean islands assumed a progressively smaller role in the economic endeavors of Spain in the New World.

The establishment of St. Augustine in La Florida in 1565 was partially funded by the Crown in exchange for Pedro Menendez de Aviles' efforts in promoting Spanish expansion, which involved military activities against the French, as well as Colonial settlement (Lyon 1976, 1989). While driving the French from Florida and protecting the sea lanes were important considerations to Spain, so too was the economic independence of the colony. In this respect, no precious metals were present; no large, sedentary indigenous population was available; and the sandy soils, climate, and topography of the region were not as productive as a large scale colonizing

effort in Florida would require (Boniface 1971; Arnade 1965). A military rationale and the mission chain established by the Franciscans in 1573 were the primary reason for St. Augustine's continued existence, which was dependent on the intermittent supplies brought from Spain by the situado (Bushnell 1981).

Colonial Florida came closest to economic expansion and independence through the introduction of an Old World resource to the peninsula--cattle. The era of cattle ranches can be delimited to approximately 1655 to 1702, when a new criollo population emerged, seeking land and independence from the Colonial administrative apparatus (Arnade 1965:6). This period of economic expansion was closely related to the pacification of local Indian provinces and demographic contraction, which allowed Spaniards to move to rural areas to raise cattle (Bushnell 1978:407). Cattle and ranch byproducts not only served the St. Augustine populace, but were also important in sustaining a limited export trade with Cuba (Boniface 1971:210).

The profits from cattle raising in Florida came to a halt as a result of British activities during the eighteenth century (Bushnell 1978:428-431). Economic potentials and settlement diminished as a result of British raiding, and Florida was turned over to England in 1763. Although the Spanish later regained the territory, they were never able to follow successfully in the economic footsteps of the British, who made good livings in Florida through trade and agriculture. British interests were also successful in Peru during the nineteenth century, as discussed later in the chapter.

Mexico provided yet another locus for Spanish Colonial settlement, one which more closely parallels the development of Latin American culture in Peru. Its history, its people, its culture, and its economy link it with the countries of South America more than with its Caribbean and northern

neighbors. Mexico was home to the Aztec civilization, which came into direct and sustained contact with the Spanish, and the Maya, who were then in a period of societal reorganization. For the Spanish, Mexico--especially the highlands--was a land with considerable economic potential, in terms of both human and natural resources.

The Aztec empire was a highly developed socio-political complex that stretched over a vast and highly differentiated ecological area at the time of Spanish contact. According to some interpretations, the arrival of Hernan Cortes in Mesoamerica in 1519 may have been interpreted by the Aztec ruler Moctezuma and his people as part of the myth-history predicting the return of the god Quetzalcoatl. Cortes, an intelligent military and political strategist, used native myth and belief to his advantage in promoting a supernatural interpretation of Spanish military prowess. His seizure of Moctezuma paralyzed resistance for a time, and in 1521 the Spanish ended the last defiance to their takeover of the Aztec capital at Tenochtitlan.

Under the Spanish, control of a number of Mesoamerican mechanisms for trade, tribute, and transportation was reoriented (Hassig 1985). The Aztecs had built a complex urban system whose growth was based on the acquisition and maintenance of control over small hinterland settlements. Economic, religious, and political pressures were put on rural areas to insure the flow of necessary commodities to urban centers. The Spanish were able to tap into these pre-existing tribute structures for labor and resource exploitation and use them to their own advantage (MacLeod 1973; Burkholder and Johnson 1990).

Following the conquest, the encomienda allowed Spanish settlers to force Indian producers into new market relationships, and within two decades a new Colonial commercial system had emerged (Burkholder

1990:154-157). In addition to silver mining, which was second to that of Peru until the late seventeenth century, colonial traffic in dyes, precious and semiprecious stones, medicinal plants and food crops, livestock, and other products were produced, used locally to some extent, and largely exported. Manufacturing of textiles, pottery, tools, and jewelry became important aspects of Mexico's internal Colonial economy, and a number of Mesoamerican products were the focus of an intercolonial commercial network.

Due to successes in a variety of Spanish-run enterprises, Colonial merchants in Mexico City (and Lima) were among the richest and most powerful residents of the New World (Burkholder and Johnson 1990:165). These entrepreneurs controlled credit and provided capital to those who needed it for additional labor or new equipment. In this sense, it appears that the rise of capitalism may have had some New World origins (Elliott 1970:66-68; MacLeod 1973:389).

The Spanish remained in control of Mexico for almost three centuries, during which time two very significant influences were imparted. First, Mexico was left with a strong element of Spanish culture, visible in the language, religion, architecture, and customs of the people who live there today. Emphasizing this cultural influence is not meant to underestimate the significance and persistence of co-elements from the indigenous tradition, however. Secondly, the Spanish era bequeathed an agrarian system of large estates and landless peasantry, a socioeconomic condition which gave great impetus to the Mexican Revolution. As we shall see, many of the characteristics that promoted Spanish success in Mexico were similarly present in Peru, where the blending of indigenous and European cultural influences is also still visible today.

Spaniards in Peru

Less accessible than the lands bordering the Caribbean, Peru was the last major discovery of Spain, and, by virtue of its silver deposits, proved to be the richest of all. The first step in reaching the western coast of Peru by ship took place in Panama, where, inspired by tales of great wealth to the south, Vasco Nuñez de Balboa set out across the Isthmus in 1513. When Balboa reached the Pacific Ocean, rumors of wealth in a country to the south increased, which spurred him on to make several preliminary but unsuccessful expeditions (Prescott 1961).

Francisco Pizarro, who had accompanied Balboa on his first trip, got as far south as what is now Colombia in 1524 with Diego de Almagro and Father Fernando de Luque accompanying him. A second Pizarro and Almagro expedition in 1526 reached the coast of present-day Ecuador; attempts to push farther south were halted by unfavorable winds. Attempts to secure enough financial support for a new voyage were unsuccessful, and the two partners decided that Pizarro should go to Spain to seek the aid of the Crown. Charles I, who was pleased with the success of the conquest of Mexico in 1521, agreed that Pizarro should continue his explorations with a salary to be drawn from the wealth he extracted from new lands.

Finally, during a journey out of Panama in 1531, Pizarro and his two brothers Juan and Gonzalo disembarked from Ecuador and began an overland trek that would culminate eventually in the conquest of Peru by Spain. Leading a force of men and cannon, Pizarro reached the city of Cajamarca in 1532, where the Inka ruler Atahualpa was reported to be (Prescott 1961: ch. 2). On hearing of the arrival of strangers, Atahualpa sent gifts along with an invitation to meet at Cajamarca. Perhaps imitating the strategy of Cortes at Tenochtitlan, Pizarro imprisoned Atahualpa and agreed to his release if a

nine foot high room measuring 22 by 17 feet was filled with gold (Prescott 1961:156). After receiving the ransom, which included a vast amount of silver, Pizarro eventually tried the Inka ruler on charges including idolatry and polygamy, and had him executed. Pockets of Andean resistance continued to battle the invaders, and it was approximately ten years before a stable Colonial Spanish government in Peru was established.

Cuzco, the political and cosmological umbilicus of the Inka world, lost its primary function during the early years of the Spanish takeover. The city was rebuilt by the Spanish, who constructed their own churches over the foundations of Inkan religious structures, but the Spanish capital was set in place at Lima. During the Colonial Period, Cuzco served as a point of linkage between Lima and the silver mine at Potosí, where silver was mined for export to Europe.

Bullion exports from the New World were staggering: between 1503-1660 more than 7 million pounds of silver reached Seville from America, much of it from Peru, which tripled the European supply (Elliott 1963:180). The Crown received about 40 percent of the total, either in payment of American taxes or of the royal fifth levied on all silver production (Wolf 1982:139). Regardless of this influx, assessments point to the massive increase in war costs and defense during this period as constituting a major drain on the system (Hamilton 1934; Hoffman 1980; Kennedy 1987: ch. 2). The problem was not so much in heavy spending by the Crown and the upper classes, since this created a demand for goods and services, but in the disproportion between expenditure and investment (Elliott 1963:312). In addition to the fact that Spain did not experience major agricultural change at this time, as England did, Spain became increasingly dependent on foreign interests rather than attaining the self-sufficiency that their new-found wealth might have

brought them at home. In Peru, however, Spain reaped the benefits of the Andes and, for almost 300 years, contributed to the formation of a new Colonial culture.

The New World Setting: Pre-Colonial Peru

The South American people encountered by Pizarro had adapted themselves successfully to the varied and often harsh environment of the Andes, as evidenced in the highly developed Inka civilization that was in place during the early sixteenth century. This culture reflected the combination and culmination of a set of long-established Andean adaptive traditions related to lifeways and economic patterns that included service to the state/community, highly productive agriculture, and long distance trade (Lumbreras 1974, 1989; Keatinge 1988; Jennings 1983). That these pre-Hispanic endeavors were so successful within such a large and ecologically diverse region speaks highly of the Andean tradition itself and underscores the indispensable contribution it made to the imposed Spanish Colonial system.

The Andean Cordillera, the dominant geographic feature of South America, extends from the northern coast of Colombia to the Cabo de Hornos in the south. On the western side, the Andes rise up from the Pacific Ocean and on the east they descend into the Amazon forest and the Argentinian plain. Although the term "Andean" is often restricted to the mountains themselves, the Andean culture area is more extensive, including both the western coastal lowlands and the margins of the Amazonian forest along the eastern foothills. The word "Andes" was coined by early Spanish conquistadores who were impressed with the terraced agricultural fields, or andenes, used to alter the landscape in order to capture and channel available water for hillside cropping (Moseley 1983:190).

The Andean cordillera exceeds 3000 meters in average elevation and creates a formidable barrier between the western coast and the eastern lowlands. Higher elevations are characterized by coldness and aridity, with perpetual snows occurring at about 4500 meters. Also affected by high elevations is oxygen content, which decreases at elevated altitudes and constitutes a major stress to the human system (Baker 1978). At altitudes above 3-4000 meters most people begin to suffer from lack of oxygen, or hypoxia, but Andean settlements and mining activities have been located at much higher elevations. Lack of sufficient oxygen can lead to a sickness known as soroche, which causes physical distress to people adapted to lower elevations (Morner 1985:5). Many Spaniards who attempted to settle in highland regions of Peru fell victim to high altitude stresses, including respiratory ailments and sterility. Andean inhabitants in these areas have adapted, both physically and culturally, to low oxygen conditions, having developed capacious lungs, a heart larger than the average by 20 percent, and a circulatory system with about 20 quarts more blood than that of an average lowlander (Weil et al. 1972:46).

Altitude is also an important differentiating factor in terms of plant growth in the Andes, as seen in wild and domesticated plant habitats that are vertically stratified. With regard to domesticates, 96 percent of the more important Andean species can grow below 1000 meters, and only 22 percent above 3000 meters (Moseley 1983:191). High altitude settlements therefore require more access to low-elevation resources, and utilize a small set of uniquely hardy domesticates. These include quinoa, a cereal, and a great variety of tubers, especially mashwa and potatoes. The larger range of important lowland crops numbers 23 (Moseley 1983:191) and includes maize, beans, avocado, peppers, cotton, and other domesticates.

In terms of natural vegetation, much of the uplands are carpeted by a hard grass known as paja, while volcanic areas are covered by puna, which consists principally of perennial herbs and thickets of a resinous shrub called tola (Weil et al. 1972:43). The eastern lowlands represent a hot and humid zone of tropical forest vegetation. These conditions extend up the eastern slopes of the cordillera, culminating in a permanently cloudy region where relative humidity exceeds 90 percent (Lumbreras 1974:3). Some of the river tributaries that originate in the Andes and flow to the east deposit fertile layers of silt along the foothills (Meggers and Evans 1983:292).

The western side of the Andes contrasts sharply with the east. While a number of rivers carry highland runoff to the west, climatic conditions cause many of them to dry out and vanish (Morner 1985:2). A narrow strip of lowland desert lies between the Andes and the Pacific, where aridity is extremely high due to the combined effects of oceanic winds and temperatures. A cold marine current known as the Humboldt Current parallels the Central Andean Coast; hot winds approaching the coast are cooled by the ocean current, which causes the formation of low-lying clouds that seldom dissolve into rain. This coastal fog, or garúa, creates areas of sparse and seasonal shrub vegetation known as lomas, named for their occurrence on the hills, or lomas, of the coast.

Inhabitants of both the highlands and coast are, and have always been, periodically threatened by destruction brought on by natural disasters, including earthquakes, avalanches, and mudslides. Earthquakes, both small and large, are accepted as a natural part of life in Peru, where the first recorded tremors hit Lima and destroyed the first settlement in Arequipa in 1552 (Weil et al. 1972:45). Most recently, tens of thousands of people fell victim to an avalanche in the Callejón de Huaylas, which destroyed a half dozen towns

and killed up to seven-eighths of the inhabitants of Yungay in 1970 (Oliver-Smith 1986).

Seismic activity can also be associated with volcanic eruptions. The earliest recorded volcanic activity came from Huaynaputina, which erupted in early February of the year 1600 (Cook 1981: 172; Cavagnaro 1988:196-198). So much ash was spewed out that in Arica, Chile, located 279 kilometers south of the volcano, the skies were reportedly dark for a month (Cavagnaro 1988:197). This eruption deposited a layer of white ash over much of southern Peru, including the Moquegua Valley.

Perhaps the most unusual of the country's hazards occurs with the periodic appearance of a warm Pacific countercurrent from the north that meets the cold Humboldt current. During these periods, torrential downpours fall on the barren coastal terrain and produce devastating floods (Moseley 1975:10). Known as El Niño (The Child) because it usually appears around the Christmas season, this complex set of events disturbs the ecological pattern established by the normally cool coastal waters and destroys the seas's plant and animal life, including plankton and anchovies. Rains wash away soil from the coastal valleys, and crops in the ordinarily rainless irrigated fields suffer major damage. Moseley (Moseley et al. 1983; Clement and Moseley 1990) has been researching these dynamics and accompanying land loss, which reflect a continuing and predictable process resulting from a subsiding water table and the downcutting of streams.

Andean Economic Adaptations

Despite the challenges and hardships presented by the Andean environment, the indigenous population of Peru has adapted itself well for a period of centuries (Lumbreras 1974, 1989; Jennings 1983; Keatinge 1988).

Within this land of stark ecological contrasts, economic and political successes were based, in pre-Colonial times, on an economic system of continuous interregional exchange of people and resources, a process that has been referred to as "economic verticality" or "ecological complementarity" (Murra 1972, 1985a, 1985b). In an attempt to expand their economic potential, communities at different altitudes exchanged foodstuffs, textiles, and other resources within a vertical network. The cornerstone of this exchange system was camelid pastoralism (Browman 1974; Kolata 1983; Brush and Guillet 1985). In order to redistribute goods from different ecological zones, llama caravans transported products along ancient caravan routes, sometimes covering distances stretching from the highlands to the coast.

Sixteenth century documents discussed the immense wealth of Aymara kingdoms that controlled large herds of llama and alpaca. One Jesuit author (Ludovico Bertonio, quoted in Murra 1968:120) has said that "the Indians are used to calling only llamas wealth." Diez de San Miguel (quoted in Murra 1968:120) noted similarly that "this is all of the wealth they have." Camelids were bred primarily for their wool, which was used in weaving a variety of products--clothes, bags, textiles, etc.--to be used, exchanged for food, or traded to fulfill social obligations. Of equal, or greater, importance was the use of camelids as pack animals for moving goods such as coca, maize, fruits, peppers, dried fish, and medicinal plants, to and from the coast and highlands. This pattern of exchange is still in evidence today, as modern traders frequently follow the old caravan routes (Murra 1985a:10).

The success of this exchange system was due largely to the organization of productive capacities, as seen in the institutions of Inka statecraft, which are documented best by ethnohistorical sources (Adorno 1986; Cieza de Leon 1959; Vega 1966; Cobo 1979). Archaeological data make it evident, however,

that these institutions were not inventions of the Inka emperors but rather represent the elaboration of many pan-Andean formations (Lumbreras 1974, 1989; Moseley 1983:196-205; Masuda et al. 1985). The core feature of the Inka system stems from the collection of revenues, in the form of goods or services, which were extracted based on principles of obligation to the state. Records were kept on such allocations using a quipu, a counting device of knotted cords that has been found in archaeological sites dated to centuries before the rise of the Inka state. Specialists in keeping records with the quipu can still be found in isolated areas of the Andes today (Spalding 1984:35)

A graphic description of the volume and variety of labor time and production that was appropriated by the Inka state is contained in the testimony of those who provided that labor. One inhabitant from the Chucuito area reported that his people gave the Inka:

> ....many Indians for war and to build houses and chacras in Cuzco and men and women to serve in his house. [The Inca] had daughters of chiefs and principales for concubines, and they gave him men and women to kill in sacrifice to the wak'as and men to put in mitimaes in many parts, and from here they took him chuño and other foodstuffs to Cuzco and fish carried quickly by chasquis (runners) in order to arrive fresh, and cloth of cumbi and abasca; and the Inca sent men to pick them up, and besides they gave him llamas in tribute and men to mine gold in Chuquiabo and silver in the mines of Porco; and there were men set aside to make feathers, and they gave him sandals and charqui, that is a meat dried in the sun, and they gave him wool from the community herds and they gave him llautos for his head and slings for war and axes of copper for war and copper picks for his house and all else that the Inca asked of them because they were very obedient (Diez de San Miguel 1567:92, quoted in Spalding 1984:85).

Compulsory labor tribute was institutionalized under the mita system (Rowe 1957; Mansilla 1979; Murra 1982; Pease 1982; Spalding 1982). Under the

mita, work took many forms according to the needs of the Inka empire at any given point in time, with obligations exacted in energy, not as tribute in kind. With millions of subjects from which to draw, organized labor power was used to build or refurbish temples, to build roads and irrigation canals, and to produce and transport agricultural goods for subsistence or surplus. Agricultural taxes took the form of labor and/or product extraction. Land was farmed with the understanding that there was to be a three-way split of production, with some output going to the Inka deities, some to the emperor and the imperial court, and the remainder to support local communities.

Andean agriculture depended to a large extent on irrigation. Sanchez-Albornoz (1974:136), in writing about the cultural contribution of this practice in the first eight centuries A.D., states that it was so effective as to increase the Andean population by 40%. Irrigation canals stretched for miles throughout the countryside, bringing water from the high springs and glacial lakes of the puna or, in the coastal lowlands, using runoff from the highlands. Both men and women worked together to build the dikes and dams that collected water for agricultural use, as well as in expanding arable land by reshaping and terracing the landcape.

In addition to irrigation, agricultural practices included the use of guano, or dung, from a large population of sea birds that fed on sea resources, especially the anchoveta (Julien 1985). This guano, which contains nitrogen and phosphorus, was traded for its agricultural value as fertilizer in increasing crop yield. A Hispanicization of the Quechua word wanu, guano was essential to Andean cultivators in both highland and coastal agriculture. Although still traded during the Colonial Period, Spanish settlers in Peru apparently scorned its use (Vicens Vives 1969:393).

Within the context of pre-Colonial agriculture in the Andes, households and kin groups tried to place within their reach the requisites for producing all the vegetal, animal, mineral, and manufactured products they needed (Murra 1972, 1980; Mujica 1985). An extended web of family groups, or ayllus, joined together with other such groups from different environmental/elevational niches to make up a larger cooperative unit. In this way the dispersed fields, pastures, water, and animals at the disposal of the individual families combined for the good of a larger community made up of interrelated ayllus and ethnic groups. The Quechua term denoting the good of the community as a whole is sapsi, meaning "something belonging to everyone" (Spalding 1984:40). During the time of the Inka, the reciprocal exchange of goods, services, and labor became the ideal way to increase a group's productive forces.

This cooperative system was useful in that currency was not used under the Inka system, nor were taxes paid by individuals. Instead, each village or community was taxed as a group, with obligations in labor distributed among residents by village leaders or kurakas (Rowe 1957; Pease 1982; Spalding 1982; Hopkins 1983). These kurakas served as middlemen to the Inka by organizing labor groups and work projects, providing men to serve in the Inka armies, distributing goods to local ayllus, and administrating land use, water rights, and access to trade routes. Kurakas were traditionally men, but women could assume the position as well, especially in cases where a widow or daughter took the place of a male kuraka after his death (Hopkins 1983:193).

Under the Inka, kurakas organized the movement of goods and services to the local and state governments, but these were also expected to flow back to the common populace in a reciprocal fashion. Recent research

emphasizes the fact that the principles of reciprocity, redistribution, and verticality ran through community life in all respects, and still does (Morner 1985:22). Diez de San Miguel (1567, quoted in Murra 1968:135) was surprised by and skeptical of "reciprocity" as he understood it, as a motivating force in the economy of the Inka. He saw goods such as coca, potatoes, quinoa, and chicha beer dispensed to laborers, who were offended if these items were not freely offered in return for their services.

Inka policy apparently tolerated the citizenry's vertical patterns of exchange on the provincial or local levels, since regional redistribution was the main concern. A system of state warehouses and an efficient network of communications allowed the supply system to work. In Huánuco, for example, approximately 500 warehouses have been found that were apparently used to store grains and tubers brought from elsewhere for the subsistence needs of the town (Morner 1985:23). The townspeople were given food subsidies and kept busy producing textiles in some 40 workshops, although no traces of a marketplace were nearby. Traffic in goods during the pre-Colonial Period was not mercantile in character (Pease 1985:148-155), and markets do not seem to have existed.

In order to transport and redistribute subsistence and luxury goods, the Inkas built an incredible set of roads that ran parallel in a northwest-southeast direction through the highlands and along the coast; additional arteries connected Cuzco and other inland centers with the coast (Hyslop 1984). Hostels (tambos) and provincial administrative centers were built along the route in order to facilitate the smooth operation of economic transactions. Goods were transported on the backs of men and/or llamas, while the elite were carried on litters (Morner 1985:24).

The material infrastructure left by the Inka gives testimony to the magnitude of its appropriated labor. So too does the organization and structure of Inkan control over the common populace, which facilitated the efficient use of varied Andean environments and allowed the long-distance redistribution of needed goods and products. That certain commonalities existed between the needs of Inkan and Spanish economic systems was beneficial to Colonial success in the Andes, and in terms of organizing labor, producing goods, and transporting both produce and silver, Andean adaptations were indispensable.

Spanish Colonial Peru

The production of silver at Potosí in upper Peru (present-day Bolivia) began in 1545 and provided the basis for the foundation and organization of the Spanish Empire in Peru (Cole 1985; Bakewell 1985). Official founding of the "Villa Imperial" settlement at Potosí is dated to 1547, when a total of 14,000 people, few of them Spanish, were in residence (Cole 1985:3). In contrast to gold mining enterprises in the New World, which were short-lived in general, the production of silver had important, long term effects, since it gave rise to genuine growth (Furtado 1970). Although silver mining required a heavy initial investment of capital, it was often an industry that increased in profitability for decades or centuries at a time and gave rise to an urbanization process and to the formation of satellite communities (Furtado 1970:26-7).

One such community was Huancavelica, located west of Lima, which was settled in 1563 in order to extract mercury. In Spain, silver production was linked to the supply of mercury from Almaden, and the discovery of the Huancavelica mine in Peru freed the Crown from the high cost of importing

the product to Potosí. Obtained from the ore cinnabar, mercury was used in a "patio process" of amalgamation that allowed for an increased yield from silver-bearing ores (Whitaker 1971:9). Spaniards learned from Indian guides the location of the Huancavelica deposits, which had previously been used in making cosmetics for Inkan women of high status (Dobyns and Doughty 1976:87). The importance of the two complementary mines was noted by one Spanish Viceroy, who claimed that Huancavelica and Potosí were "like two poles which support this kingdom and that of Spain" (quoted in Whitaker 1971:1).

Throughout its productive period, the Spanish enterprise in Peru relied on an internal distributive network to supply it with material necessities and human labor. A system of long distance resource exchange had been an important part of Andean civilization long before the arrival of the Spanish. Transport along ancient llama caravan routes was also a necessary part of the Colonial system, not only in the distribution of subsistence goods, such as botijas of wine, but in bringing silver out of Peru for shipment to Spain (Figure 2.1).

In terms of labor at the mines, workers formed huge processions along these trade routes, sometimes accompanied by their families, llamas, food, and supplies for the long march to Potosí. The majority of these laborers were sent by their kurakas in order to earn ayllu tribute (Cole 1985:3). Terms of service took one-sixth to one-seventh of the male population for periods of 2 to 3 months (Rowe 1957:174) or 6 months (Spalding 1982:331). In addition to labor, Andean natives provided their Spanish overseers with indigenous technology such as the huayra ovens, which utilized windpower in operating the smelter and replaced European-designed bellows that did not function well in the highlands (Lockhart and Schwartz 1983:101; Cole 1985:3).

Figure 2.1: 16th Century depiction of llamas transporting botijas
(adapted from Murra and Adorno 1980)

The mechanisms for labor extraction, for mining and other tasks, came into Spanish hands with relatively intact internal structures, and were used to supply labor and tribute to a new Spanish ruling class as had been done for the Inka (Gibson 1987:397). The vast difference between Inka and Spanish seizure of assets and productivity was that pre-Colonial circulation of wealth was internal, while during the Colonial era surpluses were largely exported (Dobyns and Doughty 1976:70; Morner 1987:314; Pease 1985:150).

It was the Spanish Viceroy Francisco de Toledo who carried out the definitive reorganization of Andean society, establishing patterns of social, economic, and religious action that would endure for most of the remainder of the Colonial Period. The Castilian municipio constituted the main instrument of European colonization and served to organize vast territories, distribute land and resources, and to reduce restless conquerors to civility (McAlister 1984:133-138). Below himself, Toledo organized a provincial level of direct administration in Peru, under the responsibility of a corregidor in each jurisdiction. An alcalde headed the municipal government, presiding over the meetings of the cabildos, or town councils, and carrying out numerous ceremonial as well as ordinary administrative duties. Four or more regidores served on the cabildo, depending on the rank and size of the settlement, which received law enforcement from constables known as alguaciles. Peninsular Spaniards enjoyed distinct advantages in bidding for municipal offices, yet auctions were also announced in the affected municipal capitals, where some Creoles were able to perpetuate their control of certain offices (Dobyns and Doughty 1976:90-91).

One of Toledo's most significant reforms of early Andean society called for Indians to settle in new towns and villages called reducciones, conveniently located on flat valley bottoms but often on sites subject to

disasters involving floods and avalanches (Dobyns and Doughty 1976:92; Oliver-Smith 1986). Peasants who lived in these settlements were easily governed and locally available for work service. By the beginning of the seventeenth century, however, Spanish satellite settlements, small land grants, and the development of manorial haciendas brought a rearrangement and refinement of labor institutions. Repartimiento Indians continued to pay tribute and provide mita labor services but some of them were induced to leave their reducciones and reside as yanaconas (sharecroppers) on Spanish haciendas (Faron 1985:11). As agriculture prospered, Peruvian haciendas proliferated and the demand for yanacona families increased, which led to shrinking reducciones and a minimization of the use of mita labor.

In addition to taking over Inkan labor structures and infrastructural elements such as roads, agricultural terraces, irrigation canals, and exchange networks, Spaniards in Peru took over the rights of access to strategic resources such as land and water, and altered the focus of agricultural production. During the early Colonial Period the Spanish were novices at making use of their new assets in Peru, but by the end of the eighteenth century they had achieved sufficient economic control through the exploitation of Andean kurakas (Hopkins 1983:253). By securing cooperative relations with these local elites, an aspiring ruling class of encomenderos laid the foundation for a Colonial economy and society in Peru.

Kurakas played an essential role in the Colonial economy. In their role as middlemen kurakas aided the Spanish in transforming land value, once the right of ayllu members, into a source for private profit. With the onset of new Colonial opportunities, many kurakas were willing to forsake traditional norms of reciprocity and some ruthlessly pursued their own self interests (Hopkins 1983:97). To the Spanish, the kurakas were equivalent to a local

nobility, which they regarded as part of any organized political society (Spalding 1984:210). These members of the Indian upper class were permitted to carry firearms, wear swords, dress in Spanish clothing, ride horses, and fraternize with white colonists (Gibson 1987:392). Some kurakas acquired oxen, horses, mules, and harquebuses (Spalding 1984:213), and tried to adopt the marks of status and the means to wealth in the Colonial society of the sixteenth century (Figure 2.2). They lived in houses constructed in the Spanish style and furnished with Spanish beds, tables, chairs, and tapestries, and held notarized titles to land, servants, and agricultural enterprises (Gibson 1987:392).

Much different from the system of reciprocity that characterized pre-Hispanic Andean economics, the Colonial venture created a commercial market that centered on the products from the agricultural satellite communities. Prior to 1557, the value of the goods exchanged in this system was apparently assessed in terms of money, although that money had no physical reality (Kubler 1946:373). Any silver coins that were made from Potosí silver were kept out of circulation (Cushner 1980:157). It was only later that dies were developed for producing coinage, and these were widely forged by civilians and clergy, which led Viceroy Toledo to reform the Mint Laws (Kubler 1946:373). Whenever possible, workers were given goods from the hacienda in which they worked, such as dried meat, coca, maize, and honey, in exchange for their services in agriculture or in related activities (Spalding 1982:335).

Opportunities for agricultural success in Colonial Peru were available primarily through grape and sugar production, which had become the most profitable industries on the Peruvian coast by the end of the sixteenth century (Cushner 1980:68-69). Settlements where agriculturally productive centers

Figure 2.2: 16th Century depiction of a kuraka and his wife (adapted from Murra and Adorno 1980)

were located were diametrically opposed, in form, to those that that had existed in pre-Hispanic times. They did not constitute "centers" at all but were small agricultural towns. In contrast to pre-Colonial agricultural districts, these peripheral clusterings were largely characterized by dispersed settlement and the deregulation of economic life (Keith 1976:15).

Many of the agricultural areas, by virtue of the fact that they often had a monocultural focus based on one unit of production--wine, brandy, olives, or sugar--were themselves dependent on less-specialized goods produced in other regions. For this reason, a number of marginal areas, many of them small valleys, were engaged in subsistence production, serving as "breadbaskets" for the supply of perishables and goods including corn, wheat, potatoes, legumes, firewood, and alfalfa (Brown 1986:41). Other cultigens that were grown along the coast during the sixteenth century included chick peas, melon, blackberry, cherry, fig, apple, quince, pomegranate, cabbage, and eggplant (Hammel 1969:15; Foster 1960:50-69).

Additional economic opportunities were available in livestock and related industries, which gained importance in Colonial Peru from the first founding (Vicens Vives 1969:325-327). Almost all of the animals of the Colonial era, with the exception of camelids, guinea pigs, and turkeys, were brought in from Europe and became valuable additions to New World fauna: oxen, sheep, goats, horses, donkeys, pigs, and poultry (Braudel 1985: 341; Hammel 1969:15). Other introduced species, such as the camel, which was brought in to serve as a beast of burden in the coastal desert, were not as successful (Crosby 1972:96; Whitaker 1929:8). Mules gradually became indispensable in both coastal and highland areas for transportation and portage, and raising them became one of the more profitable of Colonial operations (Kubler 1946:375). By 1776, a total of 500,000 mules was reportedly

employed in trading or for drawing coaches in Lima, which represents an enormous mechanization effort in the service of metals, agriculture, and trade (Braudel 1985:341).

In the interior of northern Peru in the central Andean highlands, sheep raising gave rise to numerous estancias (ranches) as well as to textile workshops, or obrajes (Morner 1987: 294). Obrajes in Peru began shortly after 1548 in response to a Crown prohibition against exporting Spanish cloth to the Americas (Vicens Vives 1969:325; Hopkins 1983:255). By the seventeenth century, after the decline in mining, textile workshops became one of the most lucrative industries in Peru. Apparently, Andean Spaniards held the native-woven textiles in high esteem, the best of which rivaled the most elaborate of Spanish fabrics (Tschopik 1950:200). In response to demand, corregidores forced Andean women to weave textiles for less than one-half their market price (Rowe 1957:163).

The need for Colonial production of goods, including textiles, was critical since Peru was short of basic manufactures and luxury goods in the very years that the silver output at Potosí was at its peak (Borah 1954:117). As Vicens Vives (1969:325) has pointed out, the development of industries in the Americas was always threatened by Seville's monopoly, contraband trade, and an absence of tradition in specific industrial arts. In Peru, however, and especially with regard to textile and ceramic production, while the first of these two limitations may have affected material culture, the third certainly did not.

Pottery production was an important industry in Peru, since Colonial commerce from Spain, which centered on Lima, did not begin to supply the needs of the Spanish population (Borah 1954). The greater distance of Peru from European and Asian sources of supply resulted in much higher

transportation costs and a greater length of time needed to obtain them (Randall 1977:5). During the sixteenth century, supply ships periodically reached Peru from Mexico and Panama, but neither these shipments nor those of the galleons from Spain met the demands of Lima and Potosí (Borah 1954:117). One imported product that was especially important in the context of the Peruvian wine industry, brea (pine pitch used in sealing and coating earthenware botijas), came from Mexico. MacLeod (1973:277) reports that Peruvian use of the product sparked a brief prosperity in Mexico that reached startling proportions during the years 1620-1640 and constituted a major attack on pines.

In Panama, Portobello was the most important port, serving as a direct link between Spain and Peru (Borah 1954:7; Vicens Vives 1969:406). Trade with the Philippines was also a factor in supplying Peru, offering goods including iron, silks, porcelains, spices, and wax (Borah 1954:117). During the early 1600s, however, Crown and mercantilist interests sought to stop the inflow of goods, particularly from China, from reaching Peru. Limitations and strict prohibitions on the number of ships allowed to reach Peru were increased, and in 1631 trade and navigation were suspended (Borah 1954). This suspension was made indefinite, and lasted until the first Bourbon decades under the reign of Charles III (1759-88), when substantial reforms affected the influx of European goods to Peru (Brading 1987).

Colonial Society in Peru

Lockhart (1968) has presented the most complete picture to date on the makeup of early Colonial society in Peru. A wide range of people participated in the enterprise of conquest and occupation, and among them every stratum of Spanish society was represented. Artisans were present in Colonial Peru,

as were women, merchants, and professionals in law, medicine, and the clergy. No permanent military force existed, however, and professional soldiers were so rare that they were sought out as consultants in civil wars (Lockhart 1968:221).

In terms of regional origins, the Peruvian Spaniards were largely from the kingdom of Castile, the great heartland of Spain. In order of numbers of immigrants, the Spanish were from Andalusia, Extremadura, Old Castile, New Castile, and Leon, although no one regional group had a clear predominance (Lockhart 1968:224-225). Members of Peruvian society developed their own criteria for social power and distinction, as in other bases of Spanish colonization. Spaniards in Peru made seniority of settlement one of their fundamental criteria of social prestige and position, alongside traditional patterns derived from Peninsular society (Dobyns and Doughty 1976:72).

Spanish Colonial society generated a long series of ethnic distinctions regarding social place that the Reconquista had not generated in Spain, particularly because of the rapid rise of racially mixed populations (Morner 1967; Harris 1964). By the time Pizarro's forces entered Peru, miscegenation had been underway long enough for a number of mestizos born in the Caribbean Islands and Panama to accompany the first Spanish conquerors. The word "mestizo" is not in general use anymore in Peru, although it was during the first century of Spanish colonization, when it strongly connoted biological mixture (Faron 1985:31). Such mixing was in full accordance with Spanish law in Peru as long as Indian women were Christian, which allowed unions between Spanish vecinos and women from reducción settlements. Such intermarriage was apparently quite common in Peru, as Faron (1985:21) reports that the entire population of the reducción Chancayllo (north of

Lima) was absorbed by a nearby settlement and was transformed culturally and biologically into mestizos by 1600.

Disease was also a factor in the breakdown of traditional society in the Andes as it was in other parts of the New World (Crosby 1972; Sanchez-Albornoz 1974; Cook 1981). Peru and the Andean highlands were hit hard by an early epidemic of smallpox, which spread in the early 1530s and predated the arrival of Spanish soldiers (Braudel 1981:37). This epidemic probably passed through the Isthmus of Panama, where great numbers died between 1514 and 1530 (Crosby 1972:50).

Using data from the 1572 revista general carried out by Viceroy Toledo, Cook (1981) has studied demographic change in Peru during the first century of colonization. According to his research, between 1570 and 1620 the indigenous population of Peru was reduced by approximately half. By the end of the sixteenth century he notes that, although the population of the central coast was declining less rapidly than the Trujillo or Arequipa regions, Africans were needed to replace Indian laborers in the vineyards of Pisco, Ica, and Nazca (Cook 1981:146).

In addition to agriculture, Africans played an important role as apprentices to artisans in and around Lima during the sixteenth century (Lockhart 1968: ch. 6; Bowser 1974). Lockhart (1968:98-99) states that if a whole generation of working Spanish artisans had not devoted themselves to the training of black and Indian slaves and helpers, the civil occupation of Peru could not have been as dense, nor could Spanish Peru have been as "Spanish," as it became. Artisans were, as a group, among the largest holders of slaves in Peru, second only to encomenderos. As workers under encomenderos, there seems to have been a high correlation between African laborers and the production of sugarcane and its byproducts (Faron 1985:28).

African slaves were also highly regarded as muleteers in Peru, and were generally entrusted with transporting the most valuable goods (Lockhart 1968:184). In terms of group labor, unskilled Africans were employed to a limited extent in mining at Potosí (Cole 1985:47), while less intensive gold mining using Africans took place intermittently in various parts of Peru (Lockhart 1968:185).

The Jesuits were another group that played an important role in the development of Colonial Peru. These members of the Society of Jesus arrived in Peru in 1568, where they established their first colegio, San Pablo, in Lima (Cushner 1980:5; Burkholder and Johnson 1990:223). The need to educate and work among the Indians inspired the Society to set up a number of colleges, universities, and missions throughout the Spanish colonies. These colleges were large landed estates that combined living arrangements with economic pursuits such as vineyards, farms, or mule breeding locations with associated cloth factories (Cushner 1980:64). In setting up a number of these very successful haciendas, especially in Peru, the economic role played by the Jesuits was more fundamental than the cultural (Hopkins 1983:305).

Haciendas on the coast of Peru were often small farms, and as in Mexico, use of the term hacienda was not based on size but on the value of the land to the owner (Cushner 1980; Harris 1964: 22-24). The importance of the land was that it allowed a landowner, or renter, to draw available labor to the land and make it productive. Rather than forcibly allocate labor, as under the encomienda and repartimiento systems, the labor situation changed when the Crown and the hacendados assessed the difference between the revenue Indians paid in tribute and the revenue that agriculture and cattle-raising industries provided when adequately staffed (Florescano 1987:261-265). The profits from haciendas were substantial and stable when the hacienda

succeeded in creating its own ability to attract, keep, and replace workers. When land was bought up or taken away from Indians who owned it or lived nearby, the landless Indians had no choice but to gain their subsistence from the hacendado.

While the Jesuits did not initiate this pattern, they did reinforce the Spanish pattern by wholeheartedly participating in a colonial system that created the foundation for modern agrarian problems in Latin America (Dobyns and Doughty 1976; Cushner 1980). Jesuits in Peru acquired large amounts of land, which generated large profits that in turn allowed them to acquire even more land. A hacienda's most characteristic feature was the sharp social distinction that differentiated the master and the slave, or the "big house" from the workers' huts (Keith 1976), and this distinction was equally true of the Jesuit colleges. A contradiction existed between the Jesuit vow of poverty and the symbols of great wealth they amassed--large landholdings, large houses, and easy access to credit. The Crown, knowing of the Jesuits' unwillingness to pay tithes, their attempts at independence from royal authority, and their manipulative skills in litigation with the bureaucracy, decreed their expulsion from the colonies in 1767 (Brading 1987:124). It was the Bourbon king Charles III (1759-1788) who expelled the Jesuits, whose acquisition of lands, property, and economic power had aroused jealousy among others in the colonies.

Peru's Late Colonial and Republican Periods

The reforms that accompanied the succession of the House of Bourbon to the monarchy of Spain also brought changes in Spanish policies toward the colonies. Beginning in the eighteenth century, the Bourbon policy was aimed toward centralizing and strengthening royal authority. With regard to the

colonies this was seen in the ministers of the king, rather than the traditional Colonial agencies, taking a more important role in shaping Colonial policies. These practices often met with limited success, however, because by the eighteenth century the colonies moved with a momentum of their own (Dobyns and Doughty 1976: chapter 5, from which much of the following discussion is drawn). Forces of divisiveness, which would ultimately weaken royal control of the Peruvian colony, gained added strength during this period.

The new administrative reforms adopted by Charles III were applied to all of Spanish America by 1790 and fueled strong resentment among viceroys and officials who feared their powers were being weakened, and among administrators and others who were displaced. Under the subsequent reign of Charles III's son, Charles IV, who ascended to the throne at his father's death, the new system of Colonial government failed to function effectively. In Peru, Colonial dynamics proved to be more powerful than royal policy. A movement toward separatism had began to develop early in the Colonial Period, as criollos became increasingly dissatisfied with social and economic positions that were secondary to those of high-ranking peninsulares from Spain.

Separatist fervor diminished to some extent during the reign of King Charles III, who reduced restraints on trade and stimulated more prosperous conditions. Spain had previously obstructed the economic development of its colonies by not permitting free trade and by monopolizing all commerce and business carried out in its dominions. The Reglamento of 1778 relaxed these restrictions by opening ports and allowing trade to flourish. Peru experienced an "extraordinary" increase in overseas commerce during the rule of Viceroy Teodoro de Croix (1784-90) following this liberalization

(Dobyns and Doughty 1976:135-136). Markets became saturated with three times the amount of imported goods than had previously been brought in by ship, and Peru enjoyed a golden age in Colonial commerce (Brading 1987:136-137).

At the same time, the large majority of Indians in colonial Peru were still engaged in farming and produced most of their own material goods. The few manufactured goods they acquired generally placed them in debt and perpetuated debt servitude. A growing discontent among the Indians generated local riots that occasionally spread to include settlements within a whole province, and the first movements toward independence began. Leadership was usually in the hands of local chiefs, but a series of major rebellions took place between 1780 and 1783 under Jose Gabriel Condorcanqui, or Tupac Amaru II. Claiming ancestry from the Inka dynasty, Tupac Amaru II attempted to drive the Spanish out of the old Inka empire, rallying support from both Indians and whites (Burkholder and Johnson 1990:285). Hindered by Quechua and Aymara ethnic rivalries that predated the Spanish conquest, the revolt was suppressed and Tupac Amaru and his family were brutally executed in 1781.

Mariátegui (1971:6-9) has stated that the independence movement in South America was clearly inspired by the interests of the criollo and Spanish population, rather than by the interests of the indigenous population. Dissatisfied with the lack of economic development, with Jesuit corruption, and with the class system, many criollos and mestizos became aware of their own power in the colonies. If they were to emerge as a self-empowered entity, however, it was necessary to be free of the rigid authority and the controlling medieval mentality of the Crown. By the time of the war for independence, criollos were especially ready to fight for their place in the

New World rather than continue their existence under the influence of the Old.

A series of early nineteenth century revolts in Peru were given added impetus by the Argentine patriot Coronel José de San Martín, who devised a plan for entering Peru through Lima. San Martín's underlying aim was less to achieve military victory himself, but to incite the Peruvians to fight for their own cause. By early 1821 he had succeeded in establishing revolutionary governments in four northern provinces, had stimulated guerilla action elsewhere, and made steady progress toward weakening royalist sympathies. The Liberating Army of Peru--few of its members Peruvians--gained additional support from Simón de Bolívar, who was determined to bring the struggle to a rapid conclusion. The opposing forces met in December of 1824 at the Battle of Ayacucho, which was a decisive triumph against the royalists and served to end many of the wars of independence in Spanish South America. Before complete victory was achieved, however, several remnant forces were defeated, and on January 23, 1826, the Spanish flag was lowered in Peru.

The Spanish colonies had craved economic development, and after the independence they followed these impulses and began dealing with the industries and capital of the West in order to obtain the elements and relations necessary to expand their economies (Rippy 1971; Mariátegui 1971:8-12). England played a leading role in this development, investing capital and providing machinery in return for natural resources. In Peru, natural resources became the center of the country's economic life in the post-independence years and came to occupy a disproportionately large place in the Peruvian economy (Mariátegui 1971:10).

Technical advances in industry and agriculture in Europe during the 1830s created a demand for the accumulation of bird guano on Peru's offshore islands and coastal peninsulas, and a healthy trade between Peru and the Western world was begun. English capitalists negotiated a contract for mining and exporting this guano, which was used as as fuel and fertilizer for the Industrial Revolution in Europe. The newly founded Peruvian government made lavish use of the credit they derived from this and other resource extraction programs, and mortgaged Peru's future to English investment (Dobyns and Doughty 1976:159-161; Mariátegui 1971:10).

During the mid-nineteenth century, transportation costs for export wool from the highlands began to run high, which led national executives into a period of railroad construction. Railroad entrepreneur Henry Meiggs contracted for the construction of a number of railroad lines, three of which were completed during the 1850s (Rippy 1971:23). The Moquegua-Ilo line, which covered a distance of 63 miles across the desert coast, was completed on January 12, 1871 (Rippy 1971:42; Kuon Cabello 1981:145). The construction of many of these railroad lines included the use of Chinese laborers.

Thousands of Chinese were contracted for labor in coastal Peru during the middle of the nineteenth century (Stewart 1970). These Chinese were motivated to leave their country due to overpopulation and poverty (Mariátegui 1971:279); in Peru a labor shortage arose after 1825 that provided jobs and brought the immigrants to South America. They were indentured for a period of seven years and worked first in cane fields, harvested guano on the coast by 1840, and later aided in building canals, telegraph lines, harbors, and especially railroads after 1850 (Stewart 1970:3-5). A total of 29 Chinese are reported to have been located in Moquegua during this period, 28 of whom

made their living in agriculture, while one is listed as a "servant," possibly in domestic employ (Stewart 1970:88).

One final aspect of post-Colonial developments in Peru that is important from an archaeological perspective relates to the development of manufacturing. Immediately following the relaxation of trade restrictions at the end of the eighteenth century, the British glutted the new markets with their own mass-produced products. As one traveler reported in 1829 upon entering one Peruvian home:

> "almost every object reminded me of England; the windows were glazed with English glass, the brass furniture and ornaments on the commodes, tables, chairs, etc. were English. . . . the linen and cotton dresses of the females, and the cloth coats, cloaks, etc, of the men were all English. . . . even the kitchen utensils, if of iron, were English" (quoted in Morner 1985:123).

In terms of manufacturing its own goods, Peru lagged behind most all other South American nations, with only a few industries in existence during the latter part of the nineteenth century (Rippy 1946). As Rippy has stated:

> Peru's tardiness in industrial advance was caused mainly by civil strife, defeat and losses in a war with Chile (1879-1883), baffling topography, scarcity of water in the coastal region, the agrarian outlook of its leaders, and a great mass of Indians and mestizos, with low living standards and primitive ways, among its inhabitants (1946:147) .

While this statement points to a number of internal problems, external factors were also involved in influencing the onset of Peruvian industrialization. Among these were increased contacts with Europe and North America, which introduced many new aspects of mechanized technology and were the sources of much of the capital that facilitated the

development of Peruvian industry (Mariátegui 1971; Wallerstein 1974; Dobyns and Doughty 1974; Wolf 1982). The introduction of Western technology and capital were concurrent with the flood of European products to Peru, which were found to characterize late eighteenth century archaeological assemblages in Moquegua.

Viewed from the perspective of archaeology, other than textiles, articles made of copper, and pottery, there were very few goods made in Peru until the nineteenth century. The first glass factories, for example, were set up by Italians and Frenchmen, followed by facilities for producing flour, spaghetti, hats, and shoes (Rippy 1946:155). Light industries such as these were concentrated largely around Lima and employed 6500 workers, which was considerably less than the number of artisans (Morner 1985:169). By the 1920s iron had begun to be manufactured, with a total of six plants in operation in the Lima-Callao district (Rippy 1946:150).

Grapes and Wine in Colonial America and Moquegua

The first production of wine began around 6,000 years ago in the Near East, spreading westward along the ancient Phoenician sea routes and reaching Spain by about 500 B.C. In subsequent centuries wine became a significant part of everyday life for the Spanish, playing a central role in both sacred and secular contexts. With respect to colonization, wine was an indispensable commodity that influenced Spanish fiscal and provisionment policies, and led to the introduction and development of a new industry in the New World (Mishkin 1975).

The availability of wine in the Spanish colonies was necessary in the sacraments of the Catholic Church as a symbol for Christ's blood, at fiestas, and as a subsistence staple. In terms of the latter, Earl Hamilton (1934:276) has

estimated that at least one-tenth of the normal expenditure of a Spanish Colonial household during the sixteenth century went for wine, which underscores the need for its availability. The early colonies counted on Spain to provide a constant supply of wine, but provisionment problems were more common than not. Spanish policy required that a favorable commodity balance in wine be maintained in Spain, and that its supply to the colonies not impair the availability of wine within the mother country (Mishkin 1975:83). Scarcities in Spain thus dictated limited exportation to the colonies, which led to the sale of wine at premium prices. These circumstances, in addition to the fact that wine was a bulky cargo that often spoiled during long sea voyages, encouraged colonial production in order to add to the quantities available.

The first vines grown by Spanish colonists in the New World were from the native European species Vitis vinifera. These were cultivated on Hispaniola following Columbus' second visit (Morison 1963:242), an undertaking that was soon prohibited by King Ferdinand (Haring 1964:125). Wine sent from Spain at this time appears to have been poor in quality or insufficient in quantity (or both), for Hispaniola's inhabitants petitioned in 1508 that their supply not be limited to wine grown near Seville (Bourne 1904:218). Concessions by the Crown were eventually granted, especially after the attractiveness of settlement on Hispaniola was lessened by the lure of precious metals in Mexico. In 1519, the Casa de Contración ordered that every ship sailing for the Indies carry a number of vines to be planted there (Haring 1964:125, 1947:236). Viticultural concessions were soon made with regard to New Spain as well, where grapes were reportedly grown as early as the 1520s (de Blij 1985:14) and certainly during the 1530s (Wilgus 1936:320; Hyams 1965:256).

Sixteenth century viticulture also took place on the coast of La Florida, in present day Virginia and Florida, as depicted in illustrations by the cartographer Jacques Le Moyne. Early descriptions also mention grapes growing in profusion that are probably of the species Vitis vinifera (Watlington-Linares 1983:50). Perceiving the potential profits to be made using European vines in Florida, Pedro Menendez de Aviles proposed to the King in 1565 that farmers be induced to settle in the area and establish vineyards (Lyon 1976:194-195). The settlement of Santa Elena (on Parris Island, South Carolina) was the site of one such undertaking, which was visited by Father Juan Rogel, who reported seeing a thriving vineyard there in 1568 (Lyon 1976:203-204). Archaeological investigations at the site by Stanley South (1980:14-15) have confirmed the existence of these vineyards, as detected in a series of small ditches, one of which contained a handle thought to be from a pair of pruning shears.

In Peru, the first vineyards date generally to the mid-sixteenth century (de Blij 1985:14; Hyams 1965:294; Cobo 1979:378). De Blij (1985:2) states that the vineyards of Peru (and Chile) were planted for altar wine, and that the settler supply was a secondary objective. From about 1569 it became official policy to restrict the Peruvian wine industry, not only due to competition with peninsular imports but because it engendered economic dependence (Borah 1954:124). In reality, however, these prohibitions did little to slow down the industry.

The first Peruvian vintage that can be specifically documented was gathered in 1551 and was a legal harvest reported and taxed for the Crown by local officials (Romero 1949, quoted in Mishkin 1975: 86). The owner of this crop was not mentioned by name. Harm de Blij (1985:14) states that Bartolomeu de Terrazas was the first Peruvian viticulturalist in the area of

Cuzco. He hoped the cooling effects of the Andes would be beneficial, which they were, but Cuzco was never to become a major wine center. The traditional beverage, chicha, was a more popular Andean drink, and the highlands of Cuzco may have made both grape cultivation and wine transport in that area impractical. Garcilaso de la Vega (1966:596-598) claims that Pedro Lopez de Cazalla, whom he visited in 1560, was the first person to make wine in Cuzco. He states that Charles V had offered a reward of two bars of gold to the first person who newly introduced into any Spanish colony a Spanish crop such as wheat, barley, wine, or olive oil, and produced a specific quantity of it (Vega 1966:597).

Vineyards were also present around this time in Huamanga and Arequipa (Vega 1966:597), in Ica (de Blij 1985:14), and in several irrigated valleys along the southern coast of Peru. In the Moquegua valley, first written mention of viticulture is in 1587, although Kuon Cabello (1981:357) states that grapes may have been cultivated as early as 1580. By the end of the sixteenth century, wine-making had become the coast's most profitable industry (Cushner 1980:68-69). Aguardiente was another grape product, presumably made alongside wine since the early establishment of vineyards; it was produced by 1701 in Moquegua, and probably by the mid 1600s (Kuon Cabello 1981:366-367). Viticulture was especially important in Moquegua, where grapes so dominated the agricultural system that they effectively constituted monocropping (Brown 1986:45).

The town of Moquegua was founded November 25, 1541 (Kuon Cabello 1981:38). Documentary examinations of the local archives have been undertaken by Pease (1985) and Lopez and Huertas (1990) that have indicated the potential for conducting an ample and thorough study of the region (Pease 1985:148). Notary records from the Archivo Departamental de

Moquegua (ADM) that have been consulted thus far cover the years 1594-1700, and contribute to the information presented below. (Unless otherwise indicated, ADM references that follow are the result of informal translations by Dr. P.M. Rice and the author.)

The earliest primary information on the wine industry in Moquegua comes from a legal contract for the construction of a bodega, house, and crushing tank, or lagar (ADM 1591). Written on September 20, 1591, the document names Ana de Castro and Juan Garcia as parties establishing a 10-month building contract for a fee of 550 pesos. At the time, that figure was said to be the equivalent of 8 reales.

Specifications for the house call for its construction following "a model like that of Pedro de Guevara," which suggests similar bodega complexes were already standing and functioning in Moquegua in 1591. The model calls for a foundation of river rocks, adobe walls and plaster, and doors made from well-cured wood from the valley. Trees used in such construction, which were located along the river, were primarily molle (Schinus molle) and pacay (Inga feuillei).

Another document (ADM 1593a) discusses the transfer of a load of wine out of Moquegua. One thousand botijas, "bottled, closed, and sealed," were sent from the valley to la villa imperial de Potosí. No single bodega was named in the document, which may mean the shipment comprised the vintages from several wineries. A second document from this same year (ADM 1593b) mentions Alonso de Estrada, owner of bodegas at Yaravico, and Locumbilla (Kuon Cabello 1981: 360-362), which may mean that his bodegas (especially Locumbilla, reported herein) were involved in similar transactions during this period.

Specific information on labor arrangements at Moquegua vineyards was noted in two documents written in 1594. In one (ADM 1594a), Pedro Cansino and Ana de Bilbao, who are referred to as heredados (country estate owners) and residents of Moquegua, contracted with Diego Gonzales de Porras (of the nearby town of Carumas) to form a company. Gonzales de Porras was to provide laborers to the two Moqueguanos for a period of three years, during which time a specific number of workers would arrive periodically to perform seasonally-specific viticultural tasks. Fourteen workers were allocated for weeding the unnamed vineyard or vineyards, 12 were to harvest grapes, and four were needed to prune back the vines after the harvest season was completed.

Another contract was drawn up during the same year to provide laborers to a property owner for removing or pruning vine shoots (ADM 1594b). This document differed from that previously mentioned in that it made reference to "giving recompense to the Indians" who provided the labor. Said Indians were to be paid by a man named Hernan Bueno, although no further specifics regarding the exchange were detailed.

An agreement from 1595 relates to the transfer of wine from Moquegua to Julí (Pease 1985:148). Signed by Pedro Pablo Corso and Baltasar Tumba of Torata, a contract was settled to carry 200 earthenware jugs (botijas) of wine from the valley to the highlands. Llamas and people for transporting the cargo were provided for a freight charge of 300 pesos in wine, which Pease cites as equivalent to 100 botijas.

From the seventeenth century, two documents provide information on economic development in Moquegua. In the first, written very early in the century (ADM 1601), a company was set up for the production of sugar cane. It is known that Spaniards began planting sugar shortly after their

arrival in Peru, utilizing either African or Indian labor (Dobyns and Doughty 1976:74-75). This contract does not mention Africans at work, nor do other sources from Moquegua that have been reviewed (Ignacio Avellaneda, personal communication). It may be that Africans were not commonly employed in Moquegua as they were in Ica and Nazca (Bowser 1974; Cook 1981:156).

One final document, a petition to the viceroy, gives an indication of the economic situation of Moquegua and its residents during the mid-seventeenth century (ADM 1652). Written by the cabildo, this petition asks for funding to construct an inn in Moquegua, noting a significant increase in the valley's population. Also, the document points out that Moquegua includes a number of "rich and powerful residents," who presumably reflect the success of the Moquegua industry and would benefit from such an addition to the town. Given the incomplete and often misrepresented picture that documents can give, it remains for archaeology to uncover hidden aspects of the Colonial reality in Moquegua.

The Moquegua Bodegas Project

The Moquegua Bodegas Project was initiated by Dr. Prudence M. Rice, who, after seeing the many bodega ruins and large earthenware storage jars throughout the valley during a visit in 1983, began what is essentially the first large scale historical archaeology program in Peru. Beginning in 1985, two seasons of survey were directed toward locating and mapping bodega ruins and making a count of wine fermentation and storage jars, or tinajas in order to record the material remains of the once-flourishing wine industry in Moquegua (see Rice 1985, 1986; Rice and Ruhl 1989; from which much of the information below has been drawn). Documentation of the wine production

sites and the material remains of the industry was undertaken as a means of preserving an understanding of and appreciation for the valley's valuable contribution to the Colonial history of Peru. As of 1991, only four wineries continue to produce wine and pisco in Moquegua.

During the 1985 and 1986 surveys, sites were identified using both aerial photographs and ground reconnaissance. Bodega ruins were visited and documented through photos, preliminary sketch maps, and fieldnotes that included tinaja counts, inscriptions and dates found on the jars, and information related to features at the sites such as distilling apparatus (falcas) and kilns. Surface collections of jar fragments and domestic refuse were also made at this time. At the time of the first survey it was anticipated that approximately 30 to 40 bodega ruins would be located in the valley (Rice and Ruhl 1989). In all, nearly 1400 tinajas were identified during the first two field seasons, and to date 130 bodega locations have been recorded (see Figure 1.2).

Bodega locations were identified during the course of driving the Panamerican Highway, which runs north/south through the Moquegua Valley, and by consulting aerial photos taken in 1955 and 1970. Most of the sites, especially in the southern part of the valley, are located on narrow bluffs that lie at the margins of irrigated land along both sides of the Osmore River. In the upper valley, which is much broader, the ruins are also commonly found within cultivated flatland terrain, where they are difficult to identify due to agricultural expansion and twentieth century construction.

Structurally, the bodegas consist of a complex of one-story adobe walls and open courtyards; examples with two-storied domestic structures have been recorded occasionally. The complexes usually contain both industrial and domestic sectors, consisting of rooms for fabricating and storing wine and/or aguardiente, and a residential component with living areas and

occasionally, as at Sacatilla and Yahuay, a chapel. Open courtyards often lie between industrial and residential areas, serving as animal corrals and/or storage areas.

Industrial facilities at the winery ruins include lagares (stone-lined tanks where grapes are crushed), large tinaja rooms for storing and fermenting grape juice (or mosto), and sometimes a distillery apparatus, or falca, where the fermented liquid was made into aguardiente or pisco brandy. The spatial arrangement of these facilities at each bodega is laid out to take advantage of gravity in moving liquid through various stages of the manufacturing process, as discussed below. Large adobe kilns for firing earthenware tinajas and botijas are also found at some of the bodegas, and these too are often placed strategically in order to make use of the wind to aid firing (Van Beck 1991). Botijas, also referred to as "olive jars" by historical archaeologists, are small-mouthed earthenware jars that were used for storing and transporting wine after it had reached maturity.

In producing wine in Colonial Moquegua, grapes were brought to the wineries, presumably in baskets (capachos) carried by burros, and unloaded on high ground above the bodega complex. There the grapes were placed, stems and all, into a lagar, the first in a series of below-ground, cut stone-lined tanks where foot-crushing and/or mechanical pressing took place. The crushing tanks are usually rectangular in shape and constructed of closely-fitted, dressed limestone blocks (calicanto). A few of the lagares in the valley are surrounded by adobe walls or pillars that appear to have supported roofs.

From this first tank the mosto flowed out a hole at the bottom to a lower tank, or tanks, where the pulp, seeds, and stems were removed. In general, the upper lagares are larger (five by ten meters to nine by fourteen meters) than the lower tanks (three by four meters to five by five meters),

although the depth averages about one meter regardless of size. The mosto flowed from the secondary tanks into large rooms containing the earthenware tinajas where fermentation and storage occurred. A cut stone channel was built around the wall of each tinaja room (Figure 2.3), again designed to utilize gravity, through which the mosto was deposited into tinajas using spouts that were built to correspond to the position of individual tinajas. Circular lids, also made of cut limestone, were then placed on top of each vessel to act as a seal against the entry of air, dirt, or other matter.

Tinaja rooms were commonly located at the lowest portion of the bodega complex, with a large door at one or both ends. The rooms are rectangular in plan, measuring an average of thirty to thirty-five meters in length by four to six meters in width. Shovel testing within a tinaja room at Locumbilla revealed that, at least at that bodega, posts were set in cut limestone floor braces to support crossbeams in roofing the room.

Falcas are low platforms that utilize a firebox and a shallow copper basin in distilling aguardiente or pisco brandy from fermented liquid. These small platforms are square adobe constructions that have a circular central opening into which the copper basin was set, and over which a domed top was placed. At two of the wineries visited, Locumbilla and Molle, falca construction included the use of fragments of broken tinajas.

Reuse of materials from the bodegas, be they intact or fragmented tinajas, adobes, or wood, is more common than are preservation efforts. On more than one occasion, a site was found to be lacking one or more structural elements from one day's visit to the next. In light of the shortage of fuel and construction materials in the desert, wooden roof supports, cane roofing, and wooden doors from the bodegas are taken from sites frequently. With respect

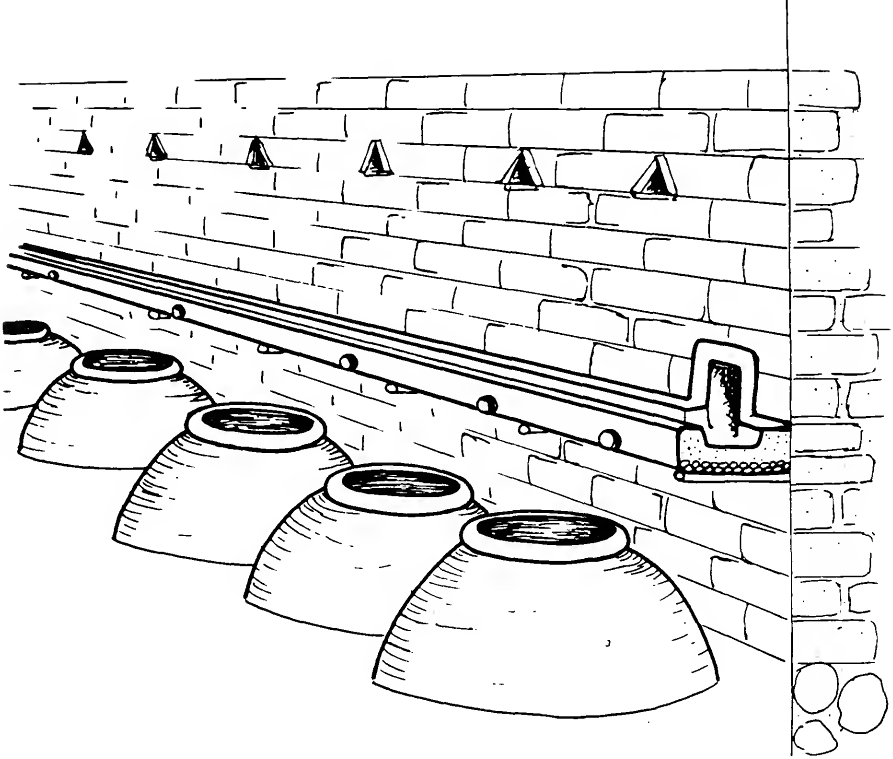

Figure 2.3: Schematic drawing of a tinaja room (from Rice 1987)

to tinajas, while many Moqueguanos decry the fact that tinajas are dug up and taken from the sites, the vessels remain a popular decorative element in private gardens, public plazas, and at the entrances to army posts.

Bodegas are also frequently disturbed by modern irrigation canal construction and road widening. Sites are usually located on high ground bordering the flat terrain of the valley floor, exactly where canals are situated in order to aid gravity in the redirection of highland runoff to water lowland crops. Many wineries have been partially disturbed or completely bisected by concrete canal construction, while others have lost entire rooms due to canal construction and/or road widening. These disturbances, in addition to the effects of frequent seismic activity, continue to wreak havoc on these historic landmarks.

In addition to these threats, nonhuman bodega residents also take a toll on standing structures and site areas. These include myriad combinations of guinea pigs, chickens, dogs, cats, goats, pigs, sheep, horses, burros, and cows, that spend their days and nights at many of the wineries, often with literal free rein with regard to structural access. These occupants cause a great deal of damage to walls and doorways, while also making negative contributions, in the form of fecal matter, to archaeological discovery and logistics. One of the unfortunate facts of life for Bodegas Project personnel is the great abundance of farm animal guano deposits, some one meter thick or more, above strata bearing cultural material.

CHAPTER 3
THEORETICAL ORIENTATION

This research focuses on those elements from both European and Andean cultures that were part of Latin American cultural development in Peru. After the term "acculturation" began to be used in referring to such research (Redfield et al. 1936), important studies with a Latin American or Spanish Colonial focus were conducted by anthropologists such as Foster (1960) and Spicer (1961). From the work of Foster (1960:7) came a definition that is used here, which defines acculturation as "the processes and results of the contact of cultures."

Julian Steward, in an article entitled "Acculturation Studies in Latin America: Some Needs and Problems" (1943), pointed out a number of features inherent in this type of research that remain as critical today as they were almost 50 years ago, both in anthropology and archaeology. Due to the complexity involved in reconstructing a system based on culture contact, he noted the necessity for integrating an anthropological viewpoint with an awareness of such things as rural economy, human geography, and history. Latin America provides a vast laboratory for such studies since during the Colonial Period people often changed their habitats and diets, adopted or adapted to a new economy, adjusted to new conditions, or became reconciled to situations over which they had no control.

As Steward points out, the scope of acculturation studies in Latin America requires effort from many researchers. With its ability to treat multiple contexts of data (Schiffer 1977) historical archaeology is in a good

position to contribute productively along these lines, and recent research has addressed, and continues to address, the inadequacies Steward noted (1943:201-202). For one, Steward cited a lack of studies of sixteenth and seventeenth century Spain, which are needed in order to establish a basis for understanding continuity and change in new contact situations. McEwan (1988) has attempted to fill this void through her analysis of the material aspects of daily life in Spain. Additional work of this kind, focusing on specific segments and classes within Spain, would serve as a welcome addition to our growing understanding of the Spanish heritage that was transplanted to the New World.

Studies of the various interactions between Indians and Spaniards in Colonial enclaves have also begun to fill gaps pointed out by Steward. Deagan (1985) has focused on the patterns of interaction that characterized settlements in Hispaniola and Florida, identifying labor relations, missionization, and miscegenation as the most important contexts in which acculturation occurred. Her work, especially that focusing on the role played by the process of mestizaje in acculturation (1973), has underscored the importance that Colonial interaction structures have on the manifestations of acculturation. Deagan has had a profound influence on research within the Spanish colonies (Deagan 1983; Willis 1984; Smith 1986; Ewen 1987; McEwan 1983, 1988; Skowronek 1989).

Steward also makes an important point that will take additional years to implement, and to which the present research is but one small contribution. In studying acculturation it is necessary to look at various contact situations in different places and during different periods. By studying established patterns from a variety of contact situations, it may be possible to generalize about the similarities and differences found among a

range of settlements (Casagrande 1964; Skowronek 1989). Archaeological assemblages from Spanish settlements should be expected to differ for any number of reasons, such as distance from Spain, environmental setting, relative economic status, ethnic affiliation, or other factors, and an understanding of these multiple components is part of the challenge of acculturation studies.

For both Spaniards and indigenous inhabitants of the Colonial Period, environment and opportunity largely influenced social organization and became a leading factor in the American experience (Morse 1962: 338; Harris 1964; Lockhart and Schwartz 1983). In Peru, Spaniards used several Andean adaptations, drawing on a number of specialized features that turned a seemingly bleak environment into one capable of supporting vast populations (Jennings 1983; Lumbreras 1974). These included labor institutions, technological systems for efficient use of land and water resources, and a long distance trade network that allowed the redistribution of goods throughout multi-elevational locales. Geographical variety, at least in the Andean case, seems to have given rise to a highly diversified set of adaptations and strategies for dealing with one's surroundings and making a living. These adaptive strategies did not go unnoticed, or untapped by the Spanish, for as Whitaker (1929:9) has said, open-mindedness and conscious adaptation were much more frequent in the Spanish Colonial system than is commonly supposed (see also Milanich and Sturtevant 1972 for additional evidence).

Acculturation Studies

The study of acculturation as an anthropological focus had its origins in the early part of the twentieth century. Beals (1953) has traced the origins

of acculturation research to the United States, where attempts were made during the late 1920s to reconstruct the vanishing "memory" cultures of the American Southwest. Clearly, the indigenous cultures of this, or any, region did not remain unmodified following contact with other groups, and studies from this period offered an opportunity for studying culture within a dynamic framework of change. The terms "culture contact" and "acculturation" are often used interchangeably in anthropology, although Foster's (1960:7) definition, "acculturation can be thought of as both the processes and results of the contact of cultures" adds clarity to the use of both concepts and is utilized herein.

In the General Index of the American Anthropologist, the earliest specific reference to acculturation appeared in the listing of Robert Redfield's (1929) "The Material Culture of Spanish-Indian Mexico," although the word itself was not used in the article. A number of articles with similar subject matter appeared in following years before the publication of the "Memorandum for the Study of Acculturation" by Robert Redfield, Ralph Linton, and Melville J. Herskovits (1936). Recognizing the importance of the study of acculturation, this panel was appointed by the Social Science Research Council to analyze the research that had been conducted on the topic, to study the term "acculturation," and to explore the potentials for its continued use (1936:149). In addition to focusing interest on the topic, perhaps the most important point to come from the Redfield, Linton, and Herskovits study is that acculturation should be viewed as a two-way process.

Acculturation as a mutual exchange has not always been seen as the outgrowth of contact between different cultures, however. A study by Parsons (1933: viii-ix) of Mitla, Mexico, was described by the author as "concerned with acculturation, with what the Indian culture took from the Spanish rather

than with assimilation which is a reciprocal process." This definition, while identifying instances of borrowing and syncretization as important, did not consider as acculturation those aspects of cultural blending that had no European elements. Such interpretations did not prevail for long, and in the same year Fortes (1936:53, quoted in Beals 1953:627) remarked that "Culture contact has to be regarded, not as a transference of elements from one culture to another, but as a continuous process of interaction between groups of different culture."

The importance of Fortes' statement, as with the earlier definition of Foster (1960), is the inclusion of the word "process." Acculturation is not an isolated event but a process in which adaptations to new conditions of life are tested, evaluated, and sometimes taken on as the result of contact between cultures. Neither is contact (usually) a single event, but a complex of interactions that are made up of different stages. By studying acculturation as a process comprised of situational components and influences, it is possible to discover patterns of behavior that reflect the conditions under which changes in culture occur.

Barnett (1940) was an early pioneer in the study of cultural processes. His interest lay in ascertaining uniformities and consistencies of pattern that underlie the acceptance and integration of new elements into a culture. Three patterned reactions to new traits were identified by Barnett in studying European contact with the Yurok, Karok, and Hupa of northwestern California -- addition, loss, or retention of an old trait by a fusion with a new one (Barnett 1940:44). While Barnett had little to say regarding the first and third outcomes, he viewed the loss of traits as coming about mainly through the acceptance of new values. Acquisition of a money economy, for example, was seen as having particularly destructive results for groups that previously

lacked such a system. Among the groups studied, a surrender of traditional subsistence items and a substitution of (white) food was an inevitable result for these were the only kinds available (Barnett 1940:44). Additional results included a newly developed spirit of individualism, an increase in the number of transient laborers, and a loss of group effort, initiative, control, and support. Paid labor replaced reciprocal services, distracted interest from communal enterprises, and replaced the direct exploitation of natural resources. Understandably, Barnett viewed these circumstances as representing the decay of a minority society faced with disruption by conquerors (Barnett 1940:48).

This theme of dominance/submission was expanded on by Foster (1960) and Spicer (1962) in studies of the dynamics of Spanish Colonial interactions with indigenous inhabitants of the Americas. In Foster's model of "conquest culture," the concept of dominance is primary, as Spanish colonists serve as the donor society for cultural traits, while members of indigenous cultures in the New World are the recipients. The resulting culture is formed by a "stripping down" process whereby elements of the donor culture are eliminated or simplified by the dominant group (Foster 1960:12). Also, members of the donor culture frequently withhold certain elements from the recipient group for reasons of political control, prestige, and the like (Linton 1940:498).

The "stripping down" feature of Foster's model serves to illuminate the fact, as Foster himself does, that Spanish culture was not transplanted to other continents in Hispanic purity, but rather that the culture was modified to varying extents by the realities of the immigrant experience. All immigrants, and hence the experiences of each, can be expected to differ in relation to status, access to goods, type of settlement (military, trade center, or

farmstead), and the physical and cultural environment into which they were transported. Colonization often was a creative process, in instances where colonists had to accommodate themselves to a new ecological situation, or to novel sociopolitical and economic arrangements. Any search for accülturative patterns and process should take notice of variations, as well as the ideal, in assessing Colonial acculturation and culture.

Along these same lines, Casagrande et al. (1964) have recognized a continuum of social and cultural retentions associated with settlement function and distance from a metropolis. Basically, a metropolitan area is the scene of a wide variety of activities, and it sustains contact with the motherland; the more remote settlements perform fewer functions and retain fewer elements of their social and cultural heritage. In this study of settlement associated with sugar cane and timber production in Ecuador, it was noted that

> As one moves away from the metropolitan area and toward the frontier, and as the links with national institutions become more tenuous, fluidity increases and social and cultural attrition is more evident. This phenomenon we call the colonization gradient (Casagrande et al. 1964:311).

While this statement may seen facile, it is a necessary consideration, especially when the area under investigation is a small valley in the desert coast of Peru that was involved in monocultural agriculture. Given the introductory nature of the present study in terms of Peruvian historical archaeology, it may be useful to approach the interpretation of acculturation in the Moquegua Valley as reflecting part of a continuum, as a means of understanding the material components of the archaeological record, and in

predicting relationships between that record and the patterns seen in other valleys, settlements, and metropolitan areas in Peru.

In addition to the effects of distance and economic isolation, the incidence of non-European products at Spanish Colonial sites can reflect differences in relative economic status and ethnic identification, as indicated by cultural patterns revealed through archaeological studies in Spanish Florida (Fairbanks 1977; Deagan 1974, 1983), and Hispaniola (Ewen 1987; Williams 1986; Smith 1986; Willis 1984; Mc Ewan 1983). These studies grew out of a desire among historical archaeologists to understand the processes of acculturation associated with Spanish Colonial settlement in the Americas. It is from this growing body of data that this study draws certain aspects of methodology and interpretation. In order to generalize toward a better understanding of Spanish Colonial adaptation, data from a variety of sources and places is necessary, and toward this end the present research hopes to contribute.

Archaeological Approaches to Spanish Colonial Acculturation

Charles H. Fairbanks initiated a program of problem-oriented archaeology in the oldest continuously occupied city in the United States, St. Augustine, Florida, during the 1970s. From the beginning, research was oriented toward an understanding of the processes involved in the formation and development of the Hispanic-American tradition in Florida. In focusing on the daily lives of average Spanish colonists, Fairbanks underscored the importance of pottery in the daily lives of colonists and as tools for the archaeologist (1972), while pointing the way to the domestic remains found in Spanish backyards (1975) as a means for uncovering the products and processes of acculturation.

As Fairbanks' student, Deagan was the first to provide an in-depth archaeological examination of the process of acculturation in Spanish Colonial America. Her early work (1973, 1974) focused on the cultural consequences of intermarriage between Spanish soldiers and Indian women in St. Augustine. The processes of Spanish-Indian miscegenation, or mestizaje, were examined using the hypothesis that Spanish influences would be most evident in socially visible items such as clothing, weaponry, religious items, and tableware that were available from the annual situado shipments from Spain; indigenous elements were expected to predominate in less socially visible, utilitarian artifacts associated with food preparation and building construction, since these were locally available (Deagan 1974:67, 1983:266-268).

Archaeological data from the eighteenth century de la Cruz site (SA 16-23) verified Deagan's original hypothesis, and several hypotheses were proposed for testing in future research (1983). The presence of documentary information on specific lot owners and their incomes allowed for the correlation of income levels with site assemblages, which demonstrated a strong correlation between Hispanic material and economic status. Those households with high incomes included the largest proportion of Hispanic artifacts, while households with low incomes contained the largest percentage of indigenous products (Deagan 1985:23-29). The recognition of these material correlates of status has been extremely useful in reconstructing and interpreting the New World expressions of Spanish culture.

Of primary interest to this study is Deagan's focus on households of mestizos who were not held in high social esteem but for whom there was a possibility of eventual social mobility through marriage and descent, and possibly through other mechanisms (Deagan 1985:104). Mestizo households

offer an opportunity to investigate specific questions related to acculturation and archaeological patterning, among those--what are the forms, proportions, and combinations of Spanish and Indian traits within an assemblage? According to Deagan's model, if a low status household were trying to integrate itself into the Hispanic mainstream through upward mobility, we would expect that socially visible areas of culture would reflect Hispanic rather than Indian influences. Research has indicated that highly visible, socio-technic Colonial artifacts that reflect Hispanic culture include tin-enameled pottery, clothing, and personal items obtained through trade (Ewen 1987; McEwan 1983, 1988; South et al. 1988; Skowronek 1989). A lower incidence of non-ceramic items of European origin is generally typical of the mestizo pattern, which reflects strong indigenous influences through a preponderance of kitchen artifacts.

Although no specific information exists on the economic or ethnic status of bodega owners and inhabitants, nor on relative income levels in Moquegua, a number of observations can be put forth, especially under Casagrande's (et al. 1964) model regarding remoteness of settlement and social attrition. Given that Moquegua was an isolated valley that was inhabited largely by people involved in a "service" industry of agricultural production, it is reasonable to expect that bodega inhabitants (as opposed to owners) did not represent the highest rungs of Colonial society. This may not pertain to sixteenth century residents, as at Locumbilla bodega, since documents from the Moquegua Archives (1591) suggest that Spaniards had structures built for both industrial and residential purposes. Those who actually resided at the wineries and supervised production, especially during the decades subsequent to initial construction and a successful first vintage, were probably not the elite of Moquegua society. With respect to ethnic categories present at the

bodegas, Indians are said to have crushed grapes and sold the prepared must, but only Spaniards made wine (Hammel 1969:32). Individuals holding the highest status (Spaniards) probably lived in town near the central town plaza (or in Arequipa or Lima) and visited the wineries during harvest, pressing, or containing (as is the case today).

Those living and working at the wineries may well have been mestizos, in which case we might expect an archaeological pattern similar to that identified by Deagan at the de la Cruz site to characterize bodega assemblages. Since trade restrictions limited the number of imported artifacts that reached Peruvian ports, few of these goods probably reached the residents of Moquegua. This situation is expected to be reflected in a greater degree of trait admixture in the material culture of the valley.

Transculturation in Peru

Beyond the occasional suggestion that the culture of Europeans undergoes some change as a result of contact or that Spanish culture in the New World was modified by Indian culture, only limited attention has been paid to the two-way aspect of acculturation (Beals 1953:628; Hallowell 1957:204). Since the time that observation was first made, research focusing on the contributions of non-Europeans to Colonial culture has lagged far behind studies that focus on the reverse. Fernando Ortiz (1940) proposed the term "transculturation" to emphasize the reciprocal nature of most contact situations and the resultant mixture of culture traits that accompanied such interactions. Although transculturation has also been mentioned in an enthusiastic way by Bronislaw Malinowski in his Preface to the Ortiz volume, use of the word has characterized neither his research nor a significant number of other publications. If acculturation is acknowledged as a two-way

process, perhaps the term "transculturation" might be more widely adopted and profitably used, especially in areas of the world that are referred to as possessing "Latin American Culture."

An intrusive culture usually has a more complex technology and is able to exploit the environment more effectively than the group on which it intrudes (Casagrande et al. 1964:283). In the case of Spanish settlement in Peru, however, the ecological exigencies of economic life, as seen in the complex set of pan-Andean adaptations that sustained civilization for centuries prior to Spanish arrival, suggest the reverse may have been true in Colonial Peru. Especially in light of the distance from Lima, the resulting culture probably represented a greater blending of people and traits. Faron (1985: ch. 2 and 3) has stated that, at least in one valley settlement similar to Moquegua, the entire population was so rapidly absorbed by the Spanish population as to be transformed biologically and culturally into mestizos by 1600.

In this study. the success of the Spanish venture in Peru is attributed to a blending of the people and technology of both Andean and European cultures. The Spanish wrested control of a complex society from the Inka, a civilization that utilized a number of cultural and technological adaptations that represented a high level of complexity. Spaniards were familiar with mountainous regions and the diversion of water for agricultural and other purposes, but had not themselves developed systems of trade, transportation, and irrigation to parallel those that existed in Peru prior to their arrival. In terms of material culture, highly advanced production of goods, including metals, textiles, and pottery, had been the hallmarks of many an Andean culture area and were prized goods even in Spain.

If, as Braudel (1973) has said, culture is made up of two distinct yet mingled parts--economic life and material life--we might expect Colonial culture in the Andes to reflect similar adaptations in terms of both these cultural components. With regard to the first, we know that the Spanish took over the infrastructural elements of the economy from the Inka, including water management systems, trade routes, and mechanisms for labor extraction. These were successfully adapted in extracting precious metals, growing crops and tending livestock, transporting bullion or goods, and a range of tasks related to the Colonial venture in general. What is not known are the components of material life in Peru. How are the Colonial adaptations that had to have been made by both Andean and Spaniard reflected in the material culture of the time period?

In cases like the Colonial Andes, it is difficult to draw the line between adaptation and acculturation (as discussed by Reitz and Scarry 1985), where concessions to environmental circumstances are necessary in many aspects of economic life. At this early stage in Peruvian historical archaeology, it was difficult to speculate prior to excavation about what would characterize the material assemblage of the bodegas, and why. Nonetheless, the following expectations were used as a working argument, or tentative model, for approaching the bodega assemblages.

In Peru, supplies sent from Spain were few after 1631, when trade with Peru was suspended (Borah 1954:117), and before 1780, when a policy of free trade (comercio libre) flooded Peru with European products (Brading 1987:136). Exchange routes were in constant use during the Colonial Period, especially in and out of Potosí, and imported goods could have been brought to Moquegua if sufficient quantities remained after supplying cities such as Lima and Arequipa. Imported goods from the years subsequent to 1780,

marked by a flood of Pearlware, Whiteware, and Ironstone pottery visible across the surfaces of bodega sites, were certainly able to reach Moquegua during the nineteenth century.

Pottery is a major component of Spanish Colonial archaeological assemblages (Fairbanks 1972; Deagan 1973, 1985; Smith 1986; Ewen 1987; McEwan 1983, 1988; South et al. 1988)), and the pottery from Moquegua was expected to be a useful tool in this investigation. Locally-produced pottery, for example, represents an inexpensive product that was used daily and made up a large percentage of archaeological assemblages at Spanish Colonial sites. As a cooking necessity, coarse earthenwares could be expected to comprise a large part of the bodega assemblages in Moquegua as well.

It is with regard to tablewares such as tin-enameled and lead glazed pottery that the Moquegua assemblage could be expected to be most enlightening. This aspect of the Spanish Colonial assemblage, as discussed above, has been the most sensitive index to social and economic variability, however, only by having access to documented or otherwise independently known patterns of social and economic variability of the units being studied, can we clearly understand what the specific variations in patterning reflect (Deagan 1983:265). Since such documentation is not available at this time for use with the archaeological data of Moquegua, the tableware recovered from the bodegas will not be addressed as a potential measure of relative economic status, but rather as a measure of cultural adaptation through trait admixture. Imported tablewares are expected to have been scarce resources in Moquegua, even though they seem to have functioned in Colonial contexts as symbols of cultural ideals. In Colonial Moquegua therefore, if these products were important to own and be identified with, but were not readily available, it would have been necessary to create them.

From Deagan's research in Florida (1974:150-152), it was hypothesized that the early stages of mestizaje would be characterized by a predominance of indigenous elements in the less socially visible aspects of material life, followed by a replacement of those products with European or criollo goods as these goods became available and as the mestizos became more established economically in the community. In Moquegua, economic patterns were expected to parallel this type of cultural development, with a replacement of scarce European products with Andean-made substitutes that reflect the influences of both cultures.

CHAPTER 4
METHODS AND MATERIALS

The primary goal of this study is to investigate the influences of both Andean and European culture in the formation and development of an emergent Colonial Latin American culture. This was approached archaeologically in Moquegua within the context of wine production, an industry that was introduced and directed by Spaniards beginning in the late sixteenth century. In order to interpret the degree to which elements from both cultures influenced life and work in the valley, and to document changes in adaptive patterns through the Colonial years, it was necessary to: 1) excavate material remains representative of the time period under study, 2) analyze artifacts associated with the occupations, and 3) interpret these remains within the context of the known history and archaeology of the Spanish Colonial Period.

As part of the larger Moquegua Bodegas Project, the present research owes much to the early bodega surveys (Rice and Ruhl 1989; Rice 1985, 1986) and to the individuals involved in documentary and architectural studies of the wineries (Lopez and Huertas 1989). Fieldwork for this study has built upon these above-ground results and was composed of two distinct subsurface phases: shovel testing and excavation. As will be discussed in Chapter 5, shovel testing was conducted at 28 (or 21.5%) of the 130 bodega locations identified during the 1985-6 surveys. This testing provided a

general idea of site size and structure, occupational history and intensity, and the general distribution and nature of material remains at the wineries.

Results from shovel testing were used to establish a baseline view of the archaeological remains associated with the wineries, and to select sites for excavation that held the potential for yielding primarily sixteenth and early seventeenth century data. Data from the late years of the Colonial Period, which lasted until about the 1820s, were also recovered, as well as more recent remains from the nineteenth and twentieth centuries. Excavations were conducted at four wineries, Locumbilla, Chincha, Yahuay, and Estopacaje, as discussed in Chapters 6 and 7. Field and laboratory research took place during 14 months in Peru between 1987 and 1990, as discussed below.

Methods

The author became involved in the Moquegua Bodegas Project during the 1987 field season, which was the first to include excavations, under the direction of Prudence M. Rice. Following the completion of the preliminary survey phase that brought the locations of the individual bodegas to light, the broad goals of the Bodegas Project centered on the archaeological investigation of the role that wine and viticulture played in the transmission of Spanish culture to the New World. As part of the larger project, the present study shared this overarching goal, while pursuing a more specific focus on the identification of Andean and European additions to Latin American culture in Peru.

The specific objectives of fieldwork involved the archaeological testing of bodega sites in Moquegua in order to: 1) to determine the horizontal and vertical extent of artifacts and occupations at a sample of the 130 recorded bodega locations; 2) to locate sixteenth and early seventeenth century deposits

at the sites, whenever possible; 3) to identify possible activity areas and to characterize cultural deposits within each site; and 4) to investigate the economic interactions of Moquegua's bodega inhabitants with other regions and nations. Three different activities were undertaken in order to meet these goals: 1) laser transit mapping of a sample of bodegas and other selected sites; 2) excavation of shovel tests at twenty-eight bodega sites in the valley; and 3) extensive excavations at Locumbilla, Chincha, Yahuay, and Estopacaje bodegas. These objectives, as well as a discussion of the procedures and materials used in analysis and interpretation within the present study, are discussed below.

Mapping and Shovel Testing

A sample of the bodega sites in the valley was mapped during the 1987 season by Rice and Christopher O. Clement. A Topcon ET-1 Totalstation was used to record data points in the field, with Clement generating computerized maps of each site at the facilities of the University of Florida following the completion of fieldwork. While each of the sites shares certain general characteristics of design and function (as discussed in Chapter 2) they all differ with regard to size, layout, and period of occupation. Additionally, the testable areas of each site differed and were often delimited or destroyed by adjacent irrigation canals, agricultural plots, modern construction, and natural site borders such as steep hills or cliffs.

Clement's maps were used in the production of plan layouts for 21 of the 28 bodegas tested (Figures 5.2 thru 5.22), which illustrate the characteristics described above and the locations of shovel tests at each site. These plans are presented in the following chapter as an accompaniment to descriptions of each site and an overview of shovel test results. It should be noted that the

plans give an indication of how the bodegas appeared at the time of shovel testing in 1987. Whether or not they remain in this state of preservation today is doubtful, due to the threats of destruction brought on by development, vandalism, and the removal and reuse of building materials by persons attempting to settle in nearby environs.

Sites were selected for mapping and shovel testing partly on the basis of their degree of preservation ("good" or "fair" condition), due to the fact that many bodega ruins have been robbed of adobes, bulldozed, or greatly disturbed by irrigation canal construction and development. Permission from the property owner also influenced site selection, as did the archaeological potential suggested by surface collections and documentary references. In all, owner permission was secured for a total of 28 bodegas, 27 of which were tested between late May and early July 1987, with one additional site tested in 1989.

Subsurface testing of the wineries was supervised by the author and was originally planned as a systematic program of auger tests. A mechanical auger was first used in testing the mid-valley site of Locumbilla, where the futility of using a motorized auger in the rocky, soft sand of Moquegua was quickly apparent. Adapting the research design, shovels were hastily procured and the auger program was replaced with one of shovel tests. Test locations were spaced 10 meters apart using a grid system established at each bodega. At Locumbilla the Topcon laser transit was used in setting in the grid; at smaller sites a grid was established using a Brunton compass and two 30-meter tapes. Test locations were marked using a nail and a tag (see Appendix G) for recording information such as the site name, grid coordinates, unit depth, and included additional space for excavation comments regarding the stratigraphy and artifactual content of each shovel

test. Using this information while in the field, it was possible to draw an initial impression of the nature, quantity, and distribution of cultural material found at each site.

Shovel test units at all of the sites were 50 centimeters or more in diameter, dug to a minimum depth of one meter unless sterile soil, impenetrable strata, or bedrock prompted unit suspension. As each test was excavated, soil was screened using 1/4 inch mesh and artifacts were bagged and a field specimen number was added to the tag used for marking the unit location. Large concentrations of tinaja, adobe, or botija fragments were weighed and recorded in the field as a means of reducing the amount of material to be transported to and processed in the lab. In the lab all artifacts were washed, analyzed, and catalogued.

Excavations

Following the shovel testing program, excavations were conducted at four of the wineries. Locumbilla bodega was the scene of major excavations during the field seasons of 1987, 1988, and 1989. Chincha bodega, located at the far southern end of the Moquegua Valley, was the site of four weeks of excavation during the summer of 1988. Two wineries were investigated in 1989 (in addition to the ongoing work at Locumbilla), including Yahuay, located at the northern end of the valley, and Estopacaje, which is in the middle part of the valley approximately two kilometers north of Locumbilla. A descriptive discussion of the excavations is presented in Chapter 6; the results of analysis comprise Chapter 7.

The identification of early Colonial remains during the excavations was facilitated by the presence of a layer of ash from the eruption of Huaynaputina volcano in February of 1600 (Cook 1981:172). This volcano,

located near the town of Omate approximately 53 kilometers northeast of Moquegua, deposited a thin (1-10 centimeters) layer of white ash that is still undisturbed in parts of the region and at some of the bodegas. The ash provides a stratigraphic marker for the separation of sixteenth century deposits from later contexts. In all, three temporal periods are used in this study in dating proveniences and interpreting excavation results:

1) Early contexts (pre-1600), situated below undisturbed volcanic ash deposits from the eruption of Huaynaputina, which provided a Terminus Ante Quem (Nöel-Hume 1969:60);

2) Middle contexts (ca 1600-1775), which postdate the volcanic ash or lack reference to it, but pre-date the introduction of late eighteenth century time markers such as Pearlware and Whiteware pottery; and

3) Late contexts (post-1775), which contain a wide variety of imported European goods, including Pearlware and Whiteware pottery, that have a Terminus Post Quem of 1775 (Miller 1987).

The excavation procedures employed were similar at each of the four bodegas. In all cases, it was possible to re-establish the grid system used during shovel testing of the sites. Prior to excavation, iron stakes were used in key locations that, based on shovel testing, held potential for revealing sixteenth and early seventeenth century data or contained concentrations of artifacts that merited further investigation. Excavation units were placed in order to investigate concentrations, dates of construction and use, and deposits that appeared to represent Early, Middle, and Late contexts. The size of excavation units varied, although a conscious effort was made to avoid units as small as one by one meter square "telephone booth" units, in order to

extract data from site areas using the most effective means possible. Depending on the goals that motivated the placement of specific units at each site (as discussed in Chapter 6), the most common excavations measured 1.5 by three meters or two by two meters square, although three by three meter squares and 1.5 by five meter units were also employed. Excavation units were identified with reference to the grid coordinates of the southwest corner of each unit.

Soils were excavated following natural deposition levels, which were variably distinguished on the basis of soil color, consistency, nature of inclusions, or often as nonsoil lenses composed of concentrated organic material such as thatch, cane, or thick deposits of grape seeds and stems. Arbitrary levels were excavated on occasion, particularly in removing upper soil zones that contained a large amount of guano and late nineteenth and twentieth century material. In general, soils at each site were composed of loose sand, although compaction, color, and natural and cultural inclusions were found to vary within and between sites. Soil profile maps were drawn and photos were taken at the completion of each unit, after sterile soil was reached. During excavation the extremely arid desert conditions rapidly dried the already dry soil, which necessitated a reliance on planned photography that utilized both natural shading and the formation of "human clouds" using crewmembers placed strategically to block the sun.

Soil was removed using shovel and trowel and was passed through 1/4 inch mesh hardware cloth, except in the case of features, which were screened using 1/8 inch mesh. Elevations were taken at the base of each natural level, and at significant points associated with features and postholes, using a string and line level placed at the unit corner of highest surface elevation. Posts, postholes, and amorphous areas were mapped and numbered consecutively

within each excavation, while soil zones received consecutive alphabetical designations that varied per unit, although cross-site deposits were duly noted as part of ongoing site interpretation. Features were numbered on a site-specific basis.

Samples of soil were taken from features, from within and below volcanic ash deposits, and from a sample of above-ash proveniences. All recovered artifacts were bagged and labelled by unit and site provenience, with one exception. Given the quantity of botija and tinaja storage vessels that were frequently encountered at the bodegas (212 kilos of botija fragments were recovered from one zone within one unit at Locumbilla, as reported by Van Beck 1991), deposits of tinaja, botija, pitch, and lime fragments were separated, weighed, and discarded in the field to avoid an overabundance of these bulky artifacts in the lab. These materials were evaluated first to discern diagnostic or rare fragments including rims, bases, botija plugs, and pitch-lined botija necks, which were removed to the lab for further study. Faunal material was bagged separately to limit breakage and to expedite analysis, as discussed below.

Laboratory Analysis

Laboratory analysis of material recovered from the shovel testing and excavations was carried out in the field/lab headquarters of Programa Contisuyu at 555 Ancash in Moquegua. There a large, rented residence provides housing, storage, and laboratory space for researchers associated with various archaeological projects in southern Peru. The sundry processing duties such as washing, drying, and cataloging of artifacts, as well as analysis, illustration, and photography, all took place at this location.

Analysis of Bodegas Project material was conducted in various stages over the course of the years 1987-1990. Peruvian legal restrictions regarding antiquities prohibited our shipping the artifacts to the University of Florida for analysis, therefore it was to our benefit to complete as much of both field and lab duties as possible before each year's departure for the United States. While concurrent field and lab progress was normally undertaken, it was often difficult to keep labwork apace with a constant barrage of incoming artifacts from the field. This was especially true during the 1988 field season, when circumstances found the author and the principal investigator mapping profiles at Locumbilla only hours before flying back to the U.S.. Nonetheless, it was usually possible to have all inorganic artifacts from a given field campaign washed and rebagged, if not preliminarily analyzed as well, before leaving at the end of a season.

Artifacts from the shovel testing were washed and analyzed concurrent with field testing as a means of interpreting preliminary results toward the selection of sites for subsequent excavation. Some artifact categories, such as pottery, glass, metal, and items associated with activities or adornment were counted, while a number of other data categories were weighed. Weighed artifacts were generally materials including mortar and brick, industrially related substances or byproducts such as lime, scoria, and pitch, as well as botija, tinaja, fauna, and miscellaneous substances (sulphur, coal, and mica, for example).

Materials

Artifact Categories

Following preliminary analysis, artifacts from the shovel tests were grouped into 26 artifact categories that described the range of artifacts

recovered from the wineries. These groupings are similar to those used elsewhere in historical archaeological studies (South 1977; Deagan 1983; Williams 1986; Ewen 1987; McEwan 1988; South et al. 1988), but have been modified in order to account for the specific assemblage from Moquegua. Artifacts from the shovel tests were identified with reference to broad categories such as Glass, Tin-enameled Pottery, Other European Pottery, etc., as discussed below.

These same categories were used in interpreting data from the excavations at Locumbilla, Chincha, Yahuay, and Estopacaje, although a more specific level of identification was used (Appendix B). Excavations provided a degree of temporal control that was not part of the shovel test analysis, and allowed for the separation of data into three time periods (Early, Middle, and Late). Additionally, the data were interpreted as they reflected the origin of certain artifacts, in order to assess Andean, European, or Other (e.g., Panamanian or Mexican) manufacture. In combination, an analysis of these attributes allows us to begin to understand how, when, and through which channels the inhabitants of Moquegua were supplying themselves.

The 26 data categories used in quantifying the data are discussed briefly below in order to provide a general familiarity with the range of artifacts in the Moquegua assemblage. A discussion of the interpretations sought from shovel test and excavation data follows.

1) Tin-Enameled Pottery: This category includes all wheel-thrown ceramics that are characterized by an earthenware paste covered with an opaque, vitreous glaze or enamel. Tin-enameled pottery became a common tableware in Europe during the fourteenth century, and was produced in Spain, Italy, England, France, and Holland (Lister and Lister 1974; Deagan 1987; South et al

1988). It constituted a luxury dining ware in the colonies, especially as the distance of a settlement from a port increased (Fairbanks 1972:165). While known by many names with respect to country of origin--majolica, delft, or faience--most of the tin-enameled pottery found in Moquegua did not belong to any of these ware categories based on characteristics of paste or glaze. For this reason, the initial analyses of shovel test material was conducted using the more general term "tin-enameled pottery," and counts were made of its occurrence at each site, as was the practice for all pottery. Classification and description of tin-enameled pottery from excavations at the wineries was conducted by Rice (1990). Specific description and discussion of this pottery is presented with excavation results in Chapter 7.

2) Lead-Glazed Coarse Earthenware: Lead-glazed coarse earthenware is also a common feature of Spanish Colonial assemblages dating from the sixteenth through nineteenth centuries. Although several varieties have been studied and defined as specific Spanish Colonial types, confusion still exists concerning the dates and places of manufacture for many other undefined wares (Deagan 1987:47). In Moquegua, none of the varieties found at Spanish sites in the circum-Caribbean (Deagan 1983; Ewen 1987; South et al: 1988), such as Melado, Green Bacín, Rey Ware, or El Morro Ware, were recovered. The lead-glazed wares found at the bodegas, which did not constitute a large percentage of the ceramic assemblage, are discussed at the beginning of Chapter 7.

3) Coarse Earthenware: This category refers to unglazed domestic pottery that was used in the cooking and storing of food. These differ from other earthenware vessels from Moquegua such as botijas and tinajas (discussed

below) that were primarily used in relation to the wine industry, although admittedly some were probably used to fulfill a number of storage or functional tasks. The coarse earthenware from Moquegua appears to represent previously undocumented plain colono-wares that were first made during the Colonial Period, although the assemblage also contains painted examples similar to those described from the highlands (Tschopik 1946). Coarse earthenwares identified herein occur largely in undecorated bowl form, some of which bear handles and evidence of having been used over a fire. This category includes fragments that are plain, slipped, or painted, as described and quantified in Chapter 7.

4) Stoneware/Porcelain: These two wares constituted very minor components of site assemblages throughout the valley and were combined to form one category. Stoneware in Moquegua did not include the early-dating Brown Cologne Stoneware recovered at several other Spanish Colonial sites (Deagan 1987:103), but English inkwells from the Victorian era (Nöel-Hume 1969:78-79) and other fragments were recovered on occasion. The same can be said of porcelains, which were represented by a handful of tiny fragments.

5) Other European Pottery: This category includes a number of well-documented wares, such as Pearlware, Whiteware, Annularware, and Ironstone, that have known dates and locations of manufacture (Nöel-Hume 1969; Miller 1987: Klein 1991). A ceramic tradition of mass-produced refined earthenwares developed in many parts of Europe during the late eighteenth century that supplied world needs for inexpensive, quality ceramic products. The relaxation of trade and economic policies, which began to affect Peru during the 1780s (Brading 1987:136) saw the introduction of a host of these

ceramics, which were created during a revolution in the European ceramic industry. These wares began to be made in Europe at the end of the Colonial Period in Peru (approximately 1779-1820), and their introduction was critical in defining the Late Period in the Moquegua Valley. The appearance of these wares, which began at the end of the Colonial Period that is the focus of this research, reflects a dramatic change in the makeup of the valley assemblage.

6) Pre-Colonial Artifacts: A number of artifacts were recovered from the wineries that represent pre-Colonial occupations adjacent to or below deposits associated with the bodegas. These include plain, decorated, and fiber-tempered pottery, and occasional fragments of lithic material, all of which were counted. Rare examples of copper ornamentation were also recovered.

7) Glass: Glass was recovered from all but one of the wineries tested and usually constituted a significant portion of site assemblages, despite the fact that Peru did not manufacture its own glass until the late nineteenth century (Rippy 1946). All of the recovered fragments were counted, and appear to represent kitchen functions as opposed to serving as window glass, an observation strengthened by the fact that glass windows were not used in bodega construction under the desert conditions of Moquegua. Examples recovered from the wineries included bottle, tumbler, goblet, and vial forms. Colors covered a wide range of green, olive, blue, brown, and amethyst, in addition to clear fragments.

8) Table/Cooking Utensils: This category includes hand-held items that are thought to have been associated with cooking, preparing, or consuming food. Knives, forks, spoons, and fragments thereof are included in this grouping, as

are carved handles of bone and wood. This category was most often represented in surface collections of the bodegas, suggesting they were a late addition to valley assemblages.

9) Wood Construction Materials: This category consists of artifacts associated with the non-adobe aspects of bodega construction, including door and furniture hardware such as hinges, nails, spikes, and tacks, as well as fragments from the wooden entities these items were meant to fasten. All artifacts associated with construction were counted. Iron plate stock-locks (Nöel-Hume 1969:243-248) and keys were also recovered and are included in this category.

10) Masonry Construction: Since most the adobe walls of the wineries are visible above surface, fragments of adobe were present throughout all of the sites (most frequently next to standing walls), and were not quantified as a means of locating structures. Instead, this category was used primarily to record the presence of other, less common construction materials, including red brick, cut limestone, and painted plaster. Artifacts of this kind, which were not commonly excavated at any of the sites, were recorded by weight.

11) Adornment: Several artifacts related to clothing and adornment were included in this grouping, many of which were preserved only because of the hyper-arid conditions of the desert. A variety of clothing/textile artifacts were recovered, ranging from coarsely woven cloth patches to underwear. Unless textile fragments appeared to match one another in design or weave, each was counted as a single occurrence. Also included were belt fragments, shoe leather, and pieces of straw hats. The items traditionally found within this

category were also encountered at the bodegas, including beads, buttons, aglets (brass lacing tips), and articles of jewelry. All of the recovered artifacts of this category were counted.

12) <u>Personal Artifacts</u>: This category includes those items that a person might have carried on a regular basis, or that others would identify with a specific person. Combs, pipes, matches, religious items, and coins were part of this grouping, each example of which was counted. Rare finds such as a pocketknife, a bag for carrying coca leaves, and cigarette packages were also recorded under this heading.

13) <u>Activities</u>: Artifacts associated with specific activities such as sewing, playing, and musicmaking were included in this category. Sewing items consisted of straight pins, thimbles, spools, spindle whorls, and occasional balls of thread. Toys were represented by a wooden top, miscellaneous doll parts, and the frequently encountered circular gaming discs that were made from pieces of pottery. A single fragment from an iron Jew's harp was also recovered.

14) <u>Industrial Items</u>: A wide variety of items were included in this catch-all category meant to group and account for industrially-related artifacts (as opposed to industrial substances, which were weighed, as described below) and tools. Wooden barrel fragments, corks, and wooden stoppers were recovered at some sites. Wooden casks began to be imported into the valley after 1868 as replacements for tinajas that suffered breakage due to earthquakes (Kuon Cabello 1980:368). Ceramic fragments from tinajas and botijas, which were used industrially, are treated as separate categories in

order to isolate their occurrence, as discussed below. Also included in this industrial grouping were baling seals, which were used in securing and labelling merchandise for shipping. According to Nöel-Hume (1969:269-271), such seals date primarily to the eighteenth century.

15) Byproducts, Industrial and Processing Substances: Artifacts included in this category were weighed, and included such materials as melted lead (reused baling seals or bullets?), slag and/or scoria from high temperature processing or production activities, and lime and pitch. Lime and pitch were used in connection with botijas (discussed as a separate category below) as an alternative means of stopping up (using lime) or sealing the interiors (using pitch) of botijas.

16) Fauna: Faunal material from the shovel testing was weighed as a means of isolating areas of domestic refuse concentration within sites. Fauna recovered from excavations is being analyzed by Moquegua Bodegas Project zooarchaeological specialist Susan deFrance and will be the subject of a separate study. In the present work, fauna is discussed briefly from the perspective of a non-specialist in Chapters 7 and 8.

17) Shell: This category was infrequently represented at the wineries. Shell was weighed and compared in relation to the presence of fauna in shovel tests at the sites.

18) Grapes: The presence of grape remains at the bodegas emphasizes the remarkable preservation caused by the desert climate, and served to document the locations of their use and disposal at the sites. Not

surprisingly, grape stems, seeds, and casings were most frequently encountered in the vicinity of the lagares, where crushing and juice-letting took place. Grape remains from shovel tests were recorded in the field using a subjective weight continuum of high (300 grams or more), medium (200 to 300 grams), or low (less than 100 grams), as a convenient method for documenting the relative amounts and depths of deposits encountered. Excavations uncovered a number of grape concentrations, as discussed in Chapter 6.

19) Other Organic Material: This category includes a vast range of both Andean and European plant species, again owing to the dry climate of southern Peru. Peach pits, corn, squash, nuts, peppers, and olives were the most common representatives of this group, all of which were counted. As with the fauna and shell, organic remains from the shovel tests were interpreted from a presence/absence perspective as a means of identifying midden deposits and guiding future excavations. Material recovered from excavations was analyzed and synthesized by Moquegua Bodegas Project botanical specialist John G. Jones (1990). Chapter 7 provides a general discussion of the results from controlled excavations, and Appendices E and F present lists compiled by Jones of the native and introduced plant species recovered, respectively.

20) Unidentified Metal: This category includes those fragments of iron, copper, lead, or brass that appeared to have once been part of objects whose form or function were uninterpretable in the laboratory. These items were counted and used in the overall interpretation of artifact content recovered from both shovel testing and excavation.

21) Tinajas: Tinajas are the large (usually 5 to 8 feet tall), unglazed earthenware jars used in fermentation and storage that were set in rows into the dirt floors of tinaja rooms (Figure 2.3). Vessel walls are 3.1-3.8 centimeters thick and the small circular base of the jar measures approximately 7.6 centimeters thick, with an external diameter of 20 to 33 centimeters (Rice 1985:25). While these could have been grouped with the Industrial Items in category 14, tinaja fragments were weighed and interpreted as an entity unto themselves as a means of isolating areas of production and/or use.

22) Botija: Botijas are earthenware vessels used for transporting wine and brandy. These have been referred to in a general way as "olive jars" although they functioned as containers for shipping and storing a variety of foodstuffs and supplies including olives, oil, beans, tar, and soap (Goggin 1960; James 1988:43). Other terms used to refer to these vessels include perulero, botijo, and the diminutive botijuela (Lister and Lister 1976).

Botijas are short-necked, elongated jars with high shoulders and a pointed base. Those found in Moquegua were produced within the valley, as at Locumbilla, where a buried kiln was found (Van Beck 1991), and can be distinguished from Spanish-made jars by virtue of a greater wall thickness and lack of a whitish green surface color. Imported jar fragments have been found in other parts of the region, but were not recovered during survey or testing in the Moquegua Valley. Botija fragments from the wineries were weighed and treated as a specific category reflecting primarily (but probably not solely) industrial usage.

23) Twentieth Century Material: This category is self explanatory. It was included as a grouping to aid in factoring out those variables that were analyzed but not included in interpretations of Colonial artifacts. Temporal indicators from this group consisted primarily of modern pottery, newspaper clippings, Inka Kola bottles, Ray-O-Vac batteries, and the like.

24) Miscellaneous Substances: These substances differ from those in category 15 in that they are raw materials not clearly related to the spirits industry. They include sulphur, coal, clay, mica, and a few rare unidentified fragments. All of these materials, none of which occurred frequently, were weighed.

25) Weaponry: Very few examples from this category were recovered in Moquegua, all of which were counted. Those recovered from shovel testing were all lead shot or late-dating brass shell casings; one honey-colored gunflint was recovered from excavations.

26) Horse Hardware: With the exception of horseshoes, this was another category that was not frequently represented. Small iron nails used to fasten shoes to a horse's hoof were also found, and are easily recognized by the unusually-shaped head that results from being hammered into the shoe. Additional artifacts from this category include bit fragments and iron saddle loops.

Interpretation of Shovel Test Data

The shovel testing of 28 bodegas yielded a preliminary view of the material remains associated with the sites and of the nature of variability in material culture throughout the valley. Shovel tests provided a subsurface

look at the sites that, in combination with structural remains, gave an initial impression of industrial and domestic activities in Moquegua during the Colonial Period. Additionally, testing aided in selecting sites with late sixteenth and early seventeenth century components, which were essential in selecting sites for further excavation and to the diachronic study of Andean and European contributions to Colonial culture.

Of the groups discussed above, Table 4.1 provides a list of the artifact categories used in comparing and contrasting the 28 sites that were tested.

TABLE 4.1: Artifact Categories Used in Intersite Comparisons

Category Number	Artifact
1	Tin-Enameled Pottery
2	Lead-Glazed Coarse Earthenware
3	Coarse Earthenware
4	Stoneware/Porcelain
5	Other European Pottery
6	Pre-Colonial Artifacts
7	Glass
8	Table/Cooking Utensils
9	Wood Construction Materials
11	Adornment
12	Personal Items
13	Activities
14	Industrial Artifacts
20	Unidentified Metal
25	Weaponry
26	Horse Hardware

In Chapter 5, the pottery classifications and the Glass and Table/Cooking Utensils categories are combined to form a single, Kitchen Group of artifacts. The remaining eight groups, and the Kitchen Group, are

used to establish patterns and compare sites in a manner similar to that employed elsewhere (South 1977; Deagan 1983; Ewen 1987; South et al. 1988).

In assessing the occurrence of material culture at each of the 28 shovel tested sites, the following questions were asked in order to gain an understanding of Andean and European influences:

1) what are the patterns of domestic and industrial artifact use represented at the Moquegua wineries?
2) what temporal periods are reflected in the artifacts and tinaja dates that give an indication of Colonial occupation at each site?
3) what is the pattern of deposition and intensity of occupation at each site, as reflected in the artifact assemblage, and what potential does the site hold for contributing through additional research?

These questions are addressed on a site-specific basis in Chapter 5. The quantified artifacts are presented in tabular form and discussed. At the end of the chapter, data are combined to provide a general understanding of material culture at the bodegas as a whole.

Interpretation of Data from Excavations

Large scale excavations at four of the sites provided a better temporal understanding of Colonial material culture than was possible from the shovel tests. Excavations were directed toward the recovery of domestic, industrial, and architectural data, and were focused on areas revealed during testing that merited further investigation, such as middens, special activity or temporally-distinct areas, and anomalies. The three-part temporal scheme discussed at the beginning of the chapter was used to isolate periods of Early,

Middle, and Late deposition, which are employed in making intra- and inter-site comparisons. In analyzing the material culture from the excavations, the following questions were asked:

1) what are the patterns of artifact use during Early, Middle, and Late periods?
2) are the artifacts of Andean manufacture or were they imported?
3) do the artifacts show evidence of trait admixture in the combination of European and Andean elements?
4) how and why do artifact patterns change over time, both within and between sites?

The last question is most important in interpreting the data in the broader context of Spanish Colonial archaeological studies. Although Moquegua was colonized by the Spanish in much the same way other sites throughout the New World were settled, the material culture of Moquegua is expected to reflect its own set of unique circumstances. Given the distance of the valley from Lima, and the proposed lower status of bodega inhabitants (as discussed in Chapter 3) assemblages from the sites are expected to reflect a pattern that lacks many of the Hispanic artifacts that characterize other Spanish Colonial sites (Deagan 1983; Ewen 1987; McEwan 1988; South et al 1988). Excavation results will be assessed as they reflect an adaptive combination of elements from both Andean and European traditions.

CHAPTER 5
SHOVEL TESTING OF 28 BODEGAS

The first archaeological data recovered from the bodegas of Moquegua were gathered through a program of shovel testing carried out at 28 sites in the valley (Figure 5.1). This sample represents 21.5% of the 130 bodega locations that have been identified in the Moquegua Valley thus far, and includes data recovered from 969 shovel tests. In this chapter, the tested sites are described briefly in order to document the size, setting, testable areas, and number of tests that characterize each. Figures 5.2 through 5.22 depict 21 of the tested sites in plan view, and serve to illustrate structures, disturbed areas, surface features, and shovel test locations. On the basis of the results of testing, each site is evaluated in terms of its potential to contribute further to an understanding of Colonial Moquegua.

Excavated data are discussed with reference to select artifact categories (as discussed in the preceding chapter), which are used in making comparisons and drawing general temporal conclusions within and between sites. Since shovel tests were excavated as single stratigraphic units, and not by level, artifacts from this part of the investigation provide information on specific site and overall valley assemblages without the benefit of stratigraphic control. Results from this phase were used as a guide for subsequent excavation, during which time temporal change in the material inventory of Moquegua was investigated.

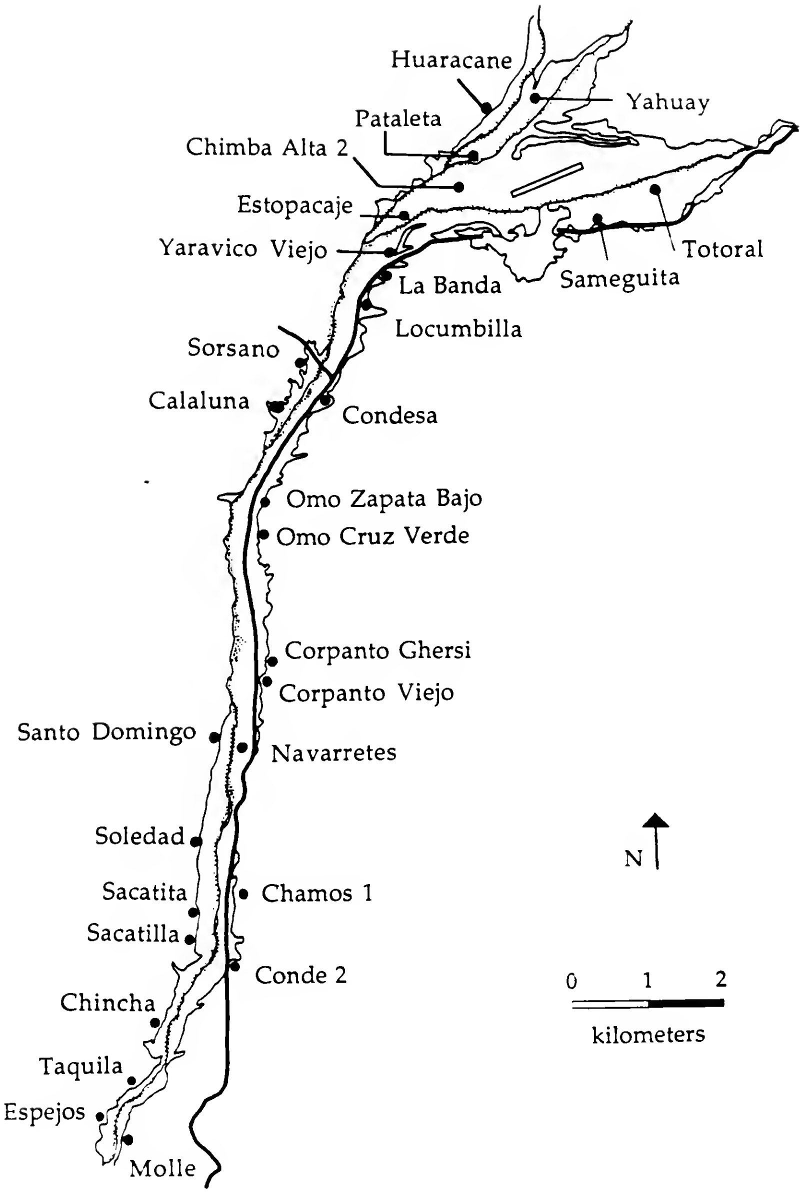

Figure 5.1: Map of 28 Bodegas Shovel Tested

A list of the bodegas that were shovel tested is presented in Table 5.1, which includes the number of tests dug at each site and the field specimen numbers that were assigned. The sites are discussed as they are situated from south to north throughout the valley, with the exception of Estopacaje, which was excavated in 1989 and the last to be added to the list. Reference to the Pan American Highway, which runs roughly north/south through the lower valley and is seen as a thick line in Figure 5.1, is made whenever possible in locating each site. It should be noted, however, that reaching certain sites is often a unique experience/adventure. Roads can wind dangerously along the edge of a narrow slope or may consist of sections of dry, rocky riverbed. Asking directions is recommended, although instructions usually consist of directives such as "Mas Alla!!" or "Mas Arribicito!!"

Site Descriptions and Results

1) Molle: The southernmost of the sites tested was Molle, located west of the Pan American Highway along the eastern side of the river drainage. The site lies on a narrow bluff at the edge of a steep dropoff where the road makes a switchback. Steep upslopes limit the extent of the site along its north, south, and east sides (Figure 5.2). An irrigation canal runs along the downsloping western edge of the site, where the remains of a falca are located. The only dated tinaja at the site reads 1853, which represents one of the most recent in the valley (Rice and Ruhl 1990). Tinajas with earlier dates may also have been present at the site previously, however.

A varied assortment of European artifacts were recovered in a surface collection of the site, including scissors, pottery, and glass, in addition to Andean-made coarse earthenwares and tin-enameled pottery. Areas available for subsurface testing at Molle covered a maximum of 80 meters

TABLE 5.1: Bodegas Shovel Tested in the Moquegua Valley

Bodega Name	Tests Excavated	Site and FS Numbers
Molle	59	(#1) 1-59
Espejos	53	(#2) 60-112
Taquila	24	(#3) 113-136
Chincha	89	(#4) 137-225
Conde 2	25	(#5) 226-250
Sacatilla	85	(#6) 251-335
Sacatita	50	(#7) 336-385
Chamos 1	26	(#8) 386-411
Soledad	21	(#9) 412-432
Navarretes	19	(#10) 433-451
Santo Domingo	24	(#11) 452-475
Corpanto Viejo	16	(#12) 476-491
Corpanto Ghersi	46	(#13) 492-537
Omo Cruz Verde	18	(#14) 538-555
Omo Zapata Bajo	34	(#15) 556-589
Calaluna	44	(#16) 590-633
Condesa	17	(#17) 634-650
Sorsano	44	(#18) 651-694
Locumbilla	92	(#19) 695-786
La Banda	14	(#20) 787-800
Yaravico Viejo	26	(#21) 801-826
Chimba Alta 2	16	(#22) 827-842
Sameguita	21	(#23) 843-863
Pataleta	24	(#24) 864-887
Huaracane	19	(#25) 888-906
Totoral	5	(#26) 907-911
Yahuay	38	(#27) 912-949
Estopacaje	21	(#28) 969-989

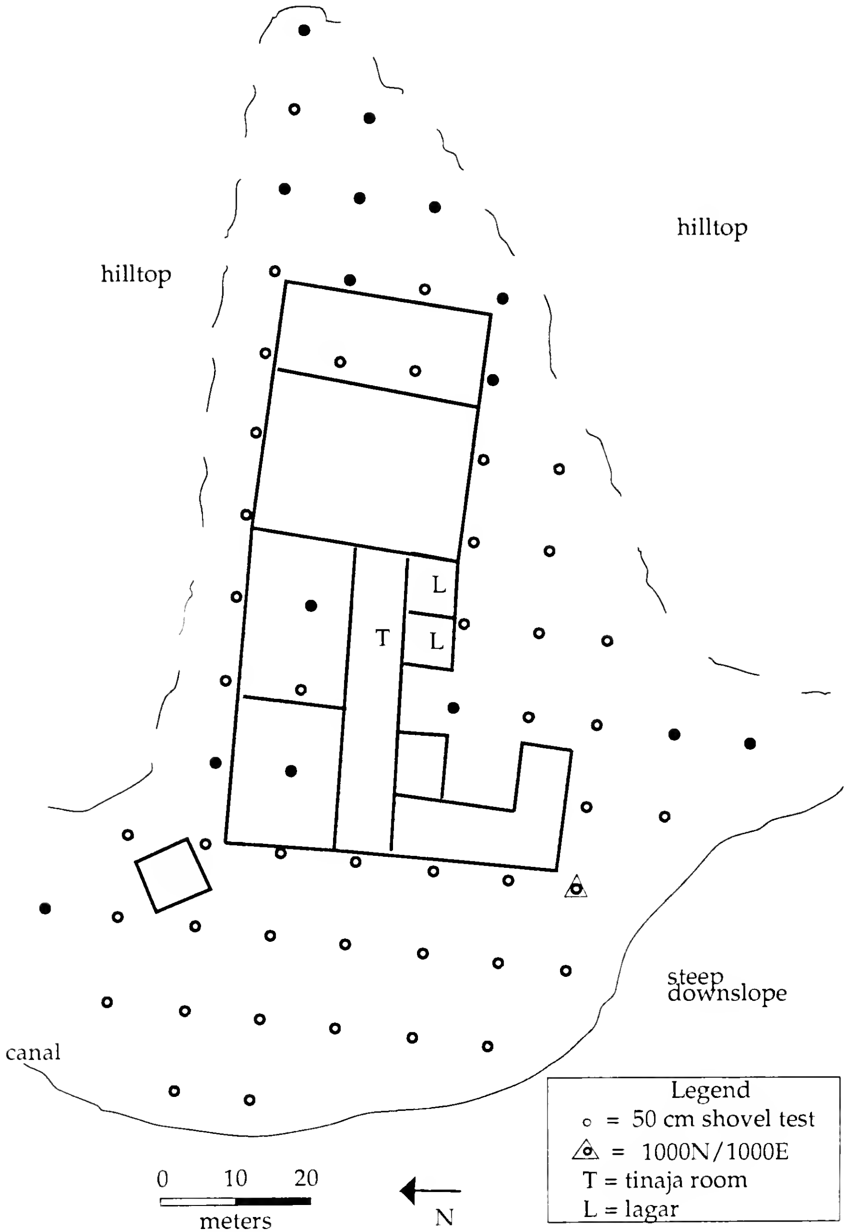

Figure 5.2: Plan View of Molle Showing Test Locations
(blackened tests are sterile)

north/south by 130 meters east/west. Within this testable zone, a total of 59 shovel tests was excavated, 15 of which were sterile.

Artifacts recovered from shovel testing numbered 292 and represented 13 of the 16 artifact categories used in site comparisons (Table 5.2). Coarse Earthenware was most frequent (29.8%), followed by Glass (27.4%), Other European Pottery (17.4%), Tin-Enameled Pottery (1.4%), Lead-Glazed Coarse Earthenware (0.7%), Stoneware/Porcelain (0.3%), and Table Utensils (0.3). Kitchen-related artifacts accounted for 77.3% of the total assemblage.

Of the non-kitchen artifacts, Molle contained a large percentage of Unidentified Metal (15.7%), while a sometimes related category, Wood Construction, accounted for 3.4% of the total. Textile fragments and a bone button comprised the Adornment artifacts at Molle (N = 6), accounting for 2.0% of the assemblage. A brass cross was recovered that represented the Personal artifact category ((0.3%), one of the few religious artifacts found in the valley. One brass and one lead bullet were present in the Weaponry category (0.7%), and one Industrial artifact (0.3%), a barrel hoop fragment, was also found.

Artifacts were concentrated in the open areas along the southern and western sides of the bodega structures at Molle. Deposits of cultural material in these areas were primarily located at between 0-60 centimeters below surface, although some artifacts were also recovered from several tests that continued beyond that depth. No volcanic ash was encountered in any of the shovel tests, and no pre-Colonial artifacts were recovered that would suggest the presence of an earlier component at the site. Based on the tinaja date noted at the site and the relatively large percentage of Other European Pottery, production and habitation at Molle appears to be related largely to the nineteenth century, and probably the eighteenth century as well. Excavation

Table 5.2: Artifact Frequencies from Shovel Tests at Molle

	Number	Percent
Tin-Enameled Pottery	4	1.4
Lead-Glazed Coarse Earthenware	2	0.7
Coarse Earthenware	87	29.8
Stoneware/Porcelain	1	0.3
Other European Pottery	51	17.4
Pre-Colonial Artifacts	0	0
Glass	80	27.4
Table Utensils	1	0.3
Wood Construction Materials	10	3.4
Adornment	0	0
Personal Artifacts	6	2.0
Activities	1	0.3
Industrial Artifacts	1	0.3
Unidentified Metal	46	15.7
Weaponry	2	0.7
Horse Hardware	0	0
Total	292	99.7

at the site would permit a more refined assessment of its occupation and provide a basis for interpreting life in the extreme southern part of the valley. Additional work at the site would be particularly beneficial if excavations focused on areas of artifact concentration and compared the domestic assemblage from Molle with that of the Espejos bodega directly across the river. The two sites may have been occupied simultaneously, and could provide a basis for identifying status differentiations within the valley community.

2) Espejos: This site is located less than one kilometer northwest of Molle on the western side of the river. A canal runs along the eastern side of the site (Figure 5.3), separating it from the adjacent grape vineyards of Antonio Biondi. The eastern part of the site is very disturbed, with modern construction and machinery storage having displaced much of what was once the wine production sector of the site. A few tinajas are still visible in their original positions (visible dates range from 1773-1832), as well as the remains of a kiln in the extreme northeast corner of the site. Farther to the west, the adobe remains of what appear to have been living quarters are situated at the top of a small hill, where equipment is now stored.

The largest quantity of domestic refuse noted at any of the bodegas was found eroding out of the hillside. Surface finds included a large quantity of European goods, such as porcelain, brown salt-glazed stoneware, Ironstone, and other ceramics, as well as a brass earring, a bone button and carved bone handle, as well as numerous pieces of glass, iron, and tin-enameled pottery. The tested portion of the site covered a maximum of 70 meters north/south by 160 meters east/west. Within this area a total of 53 shovel tests was excavated, 15 of which were sterile.

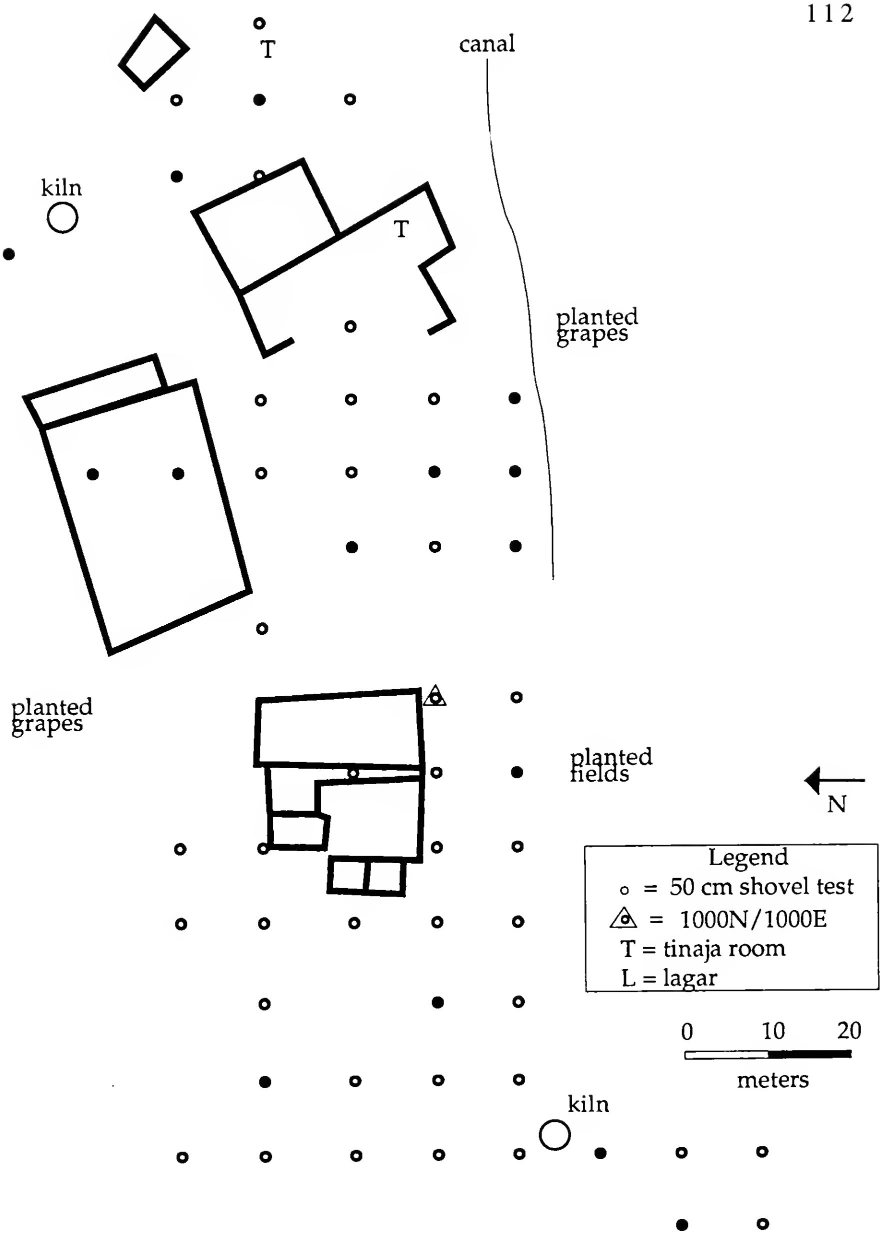

Figure 5.3: Plan View of Espejos Showing Test Locations
(blackened tests are sterile)

Testing at Espejos yielded 247 artifacts representing 11 categories (Table 5.3). Of the total, Coarse Earthenware was most common (37.3%), followed by Glass (22.7%), Other European Pottery (17%), Tin-Enameled Pottery (3.6%), Lead-Glazed Coarse Earthenware (2.4%), and Table Utensils (1.6%). Kitchen-related artifacts accounted for 84.6% of the total assemblage. The remainder consisted of articles of Adornment (8.1%), Wood Construction Materials (3.2%), Unidentified Metal fragments (2%), Activity items (1.2%) and two Pre-Colonial lithic flakes (0.8%).

Two pre-Colonial components were noted outside the boundaries of the historic occupation at Espejos. Approximately 50 meters west of the site's western edge a scatter of undecorated sherds was noted over an area approximately 15 meters north/south by 30 meters east/west. A second area of interest is located off the southwestern edge of the site, where human burials and pre-Colonial artifacts were seen eroding out of a hole apparently dug by heavy machinery. This location is situated approximately 50 meters southeast of a small kiln located in the extreme southwestern corner of the site. No surface material was collected from either of these loci, and no volcanic ash was encountered in any areas of the site. Both locations appear to have potential for pre-Colonial investigation.

In summing up results from Espejos, undisturbed historical material is concentrated on the hilltop at the west side of the site. Deposits in that area contained artifacts primarily between 0-60 centimeters below surface, although material was also recovered below that depth. Data suggest that the site was occupied during the eighteenth and nineteenth centuries, and possibly earlier. As discussed above, further work at the site would be useful in further defining the occupation of the southern part of the valley, especially in comparisons with nearby Molle.

Table 5.3: Artifact Frequencies from Shovel Tests at Espejos

	Number	Percent
Tin-Enameled Pottery	9	3.6
Lead-Glazed Coarse Earthenware	6	2.4
Coarse Earthenware	92	37.3
Stoneware/Porcelain	0	0
Other European Pottery	42	17.0
Pre-Colonial Artifacts	2	0.8
Glass	56	22.7
Table Utensils	4	1.6
Wood Construction Materials	8	3.2
Adornment	20	8.1
Personal Artifacts	0	0
Activities	3	1.2
Industrial Artifacts	0	0
Unidentified Metal	5	2.0
Weaponry	0	0
Horse Hardware	0	0
Total	247	99.9

3) Taquila: This bodega is located on the western side of the river, approximately one kilometer northeast of Espejos. Tinajas at Taquila bear visible dates that range from 1747 to 1816. An irrigation canal borders the eastern side of the site, with cultivated land along both the south and eastern edges (Figure 5.4). A steep hillside is located along the north and western sides of the winery.

Surface material was minimal at Taquila, including Pearlware, an iron spike, a fragment of plain pottery, and a wooden stopper. The testable portions of the site measured a maximum of 100 meters north/south by 70 meters east/west. A great deal of disturbance was present in the form of adobe rubble, fallen rock, and overgrown vegetation, which limited the number of excavated tests to 24. Four of the tests were sterile.

Artifacts recovered from Taquila numbered 78 and reflected 10 artifact categories (Table 5.4). One anomaly at this site was the fact that Glass (and not Coarse Earthenware) was the most common artifact, accounting for 39.7% of the total assemblage. Coarse Earthenware was next (16.7%), followed by Other European Pottery (14.1%), and Tin-Enameled and Lead-Glazed wares, both accounting for 2.6%. The percentage of Kitchen-related artifacts was 75.7%. Of the other finds, Wood Construction Materials made up 11.5% of the total assemblage, followed by Industrial Artifacts (6.4%), Unidentified Metal ((3.8%), and one item from the Weaponry and Adornment categories (1.3% each).

In general, the results of testing at Taquila were disappointing. Artifacts were few at the site, and no clear concentrations of material were identified. Deposits were shallow, with most material recovered from depths between 0-40 centimeters below surface. Structurally, the bodega is

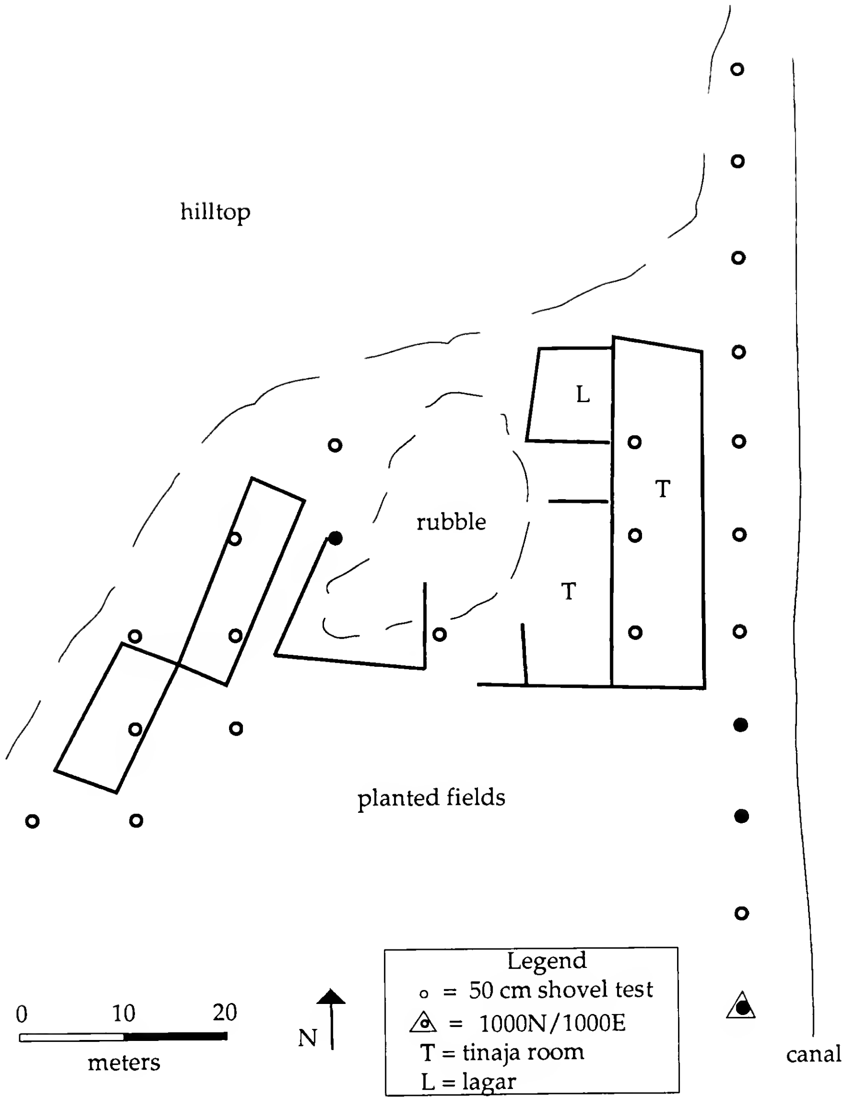

Figure 5.4: Plan View of Taquila Showing Test Locations
(blackened tests are sterile)

Table 5.4: Artifact Frequencies from Shovel Tests at Taquila

	Number	Percent
Tin-Enameled Pottery	2	2.6
Lead-Glazed Coarse Earthenware	2	2.6
Coarse Earthenware	13	16.7
Stoneware/Porcelain	0	0
Other European Pottery	11	14.1
Pre-Colonial Artifacts	0	0
Glass	31	39.7
Table Utensils	0	0
Wood Construction	9	11.5
Adornment	1	1.3
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	5	6.4
Unidentified Metal	3	3.8
Weaponry	1	1.3
Horse Hardware	0	0
Total	78	100

unoccupied and worthy of preservation, but further subsurface investigation of the site is expected to produce minimal results.

4) Chincha: One of the largest sites tested was Chincha, located 1.5 kilometers northeast of Taquila. Chincha lies on the western side of the valley, due west of Panamerican Highway kilometer marker #1154. The site is owned by Antonio Biondi, who graciously provided us with hospitality and storage space during the course of testing and subsequent excavation at Chincha. The site is bordered by hillsides along its west and northern edges, and by a steep downslope, irrigation canal, and agricultural fields to the east (Figure 5.5). The southern end of the site marks the juncture of the canal and hillside, and contains a large mound of bulldozed rubble near the tinaja rooms. Visible dates on the tinajas are from the years 1796 and 1797.

Chincha covers a large rectangular area measuring approximately 200 meters north/south by 50 meters east/west. Surface material from the site included Pearlware, Whiteware, Stoneware, tin-enameled and plain pottery, as well as glass and iron. Also recovered were a brass aglet, an iron stock lock, and two bricks bearing the stamp of the Rufford Company of Stourbridge, England.

A total of 89 tests was excavated at Chincha, of which 24 were sterile. Artifacts recovered numbered 259 and represented 12 of the 16 artifact classifications (Table 5.5). Of the total, Coarse Earthenware was most common (34.7%), followed by Glass (21.6%), Other European Pottery (20.8%), Tin-Enameled Pottery and Lead-Glazed Coarse Earthenware (both at 1.9%), and Stoneware/Porcelain (0.4%). These Kitchen artifacts accounted for 81.3% of the total assemblage. Of the remainder, Unidentified Metal made up 6.2% of the total, followed by Industrial Artifacts (4.6%) and articles of Adornment

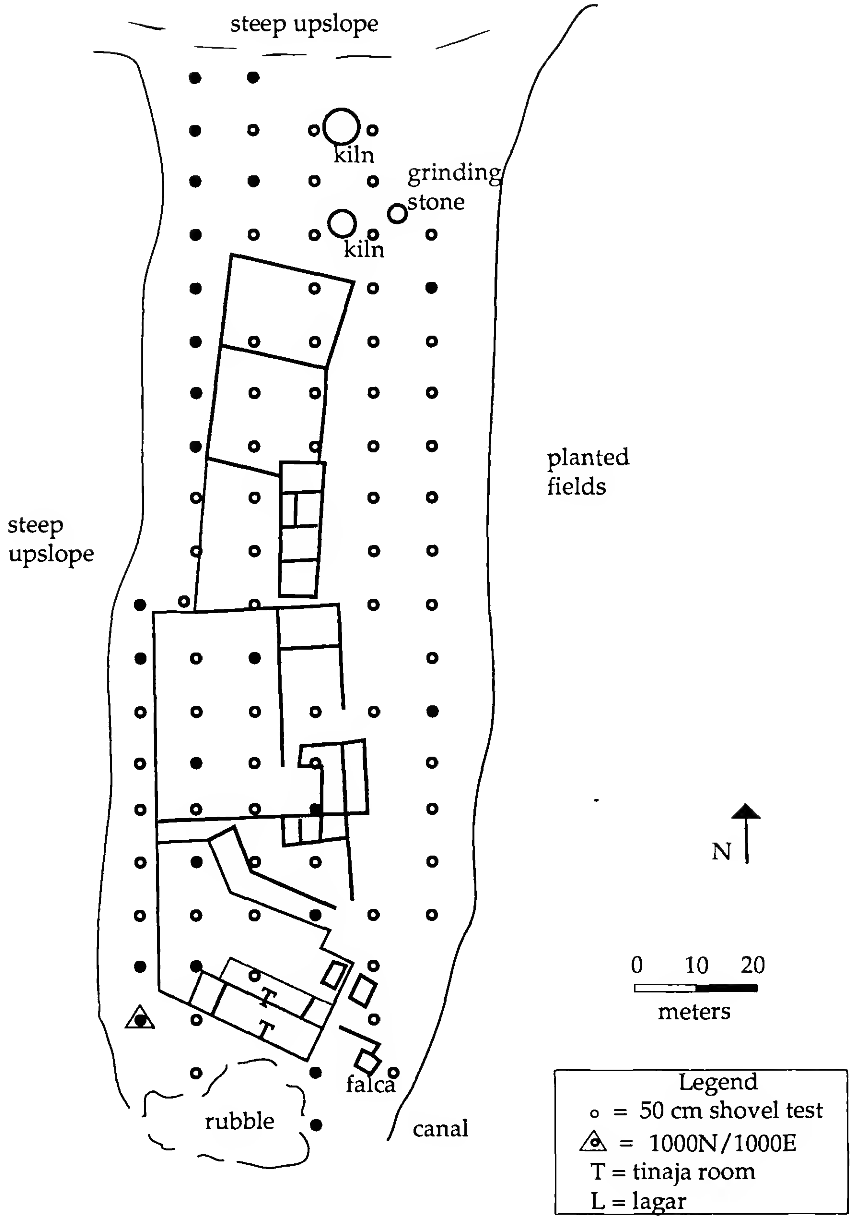

Figure 5.5: Plan View of Chincha Showing Test Locations
(blackened tests are sterile)

Table 5.5: Artifact Frequencies from Shovel Tests at Chincha

	Number	Percent
Tin-Enameled Pottery	5	1.9
Lead-Glazed Coarse Earthenware	5	1.9
Coarse Earthenware	90	34.7
Stoneware/Porcelain	1	0.4
Other European Pottery	54	20.8
Pre-Colonial Artifacts	0	0
Glass	56	21.6
Table Utensils	0	0
Wood Construction Materials	7	2.7
Adornment	11	4.3
Personal Artifacts	0	0
Activities	1	0.4
Industrial Artifacts	12	4.6
Unidentified Metal	16	6.2
Weaponry	0	0
Horse Hardware	1	0.4
Total	259	99.9

(4.3%). Wood Construction Materials made up 2.7% of the total, while the Activities and Horse Hardware categories were both represented by one item each (0.4%).

Shovel tests revealed two areas of particular interest at Chincha, one at the north, and the other toward the south. At the extreme northern part of the site were two kilns, one a large kiln, and the other much smaller and suggestive of those used in calcining gypsum (Van Beck 1991). A number of tests in this vicinity revealed a lens of volcanic ash associated with the eruption of Huaynaputina in 1600, which has proven indispensable in identifying early occupations in the valley.

In the southern part of the site, artifact concentrations were noted in a large open room north of two tinaja rooms. An extremely dense deposit of cow bone was revealed in tests located along the room's western edge. Additionally, a number of wooden stoppers were found across the surface of the room. The presence of these stoppers was in keeping with the supposition that this room served as a tonel room used to store barrels of wine.

Based on field investigation, Chincha is a relatively intact structure with large areas of both undisturbed and disturbed soil deposits. It was also found to contain deposits of volcanic ash, which suggested it might contain evidence of sixteenth century Colonial occupation. Based on these criteria, Chincha was selected as one of the sites for further excavation, as discussed in Chapter 6.

5) Conde 2: This winery is located east of the Panamerican Highway, approximately one-half kilometer north of marker #1153, and 300 meters south of a gas station. The site drops off into agricultural fields to the north

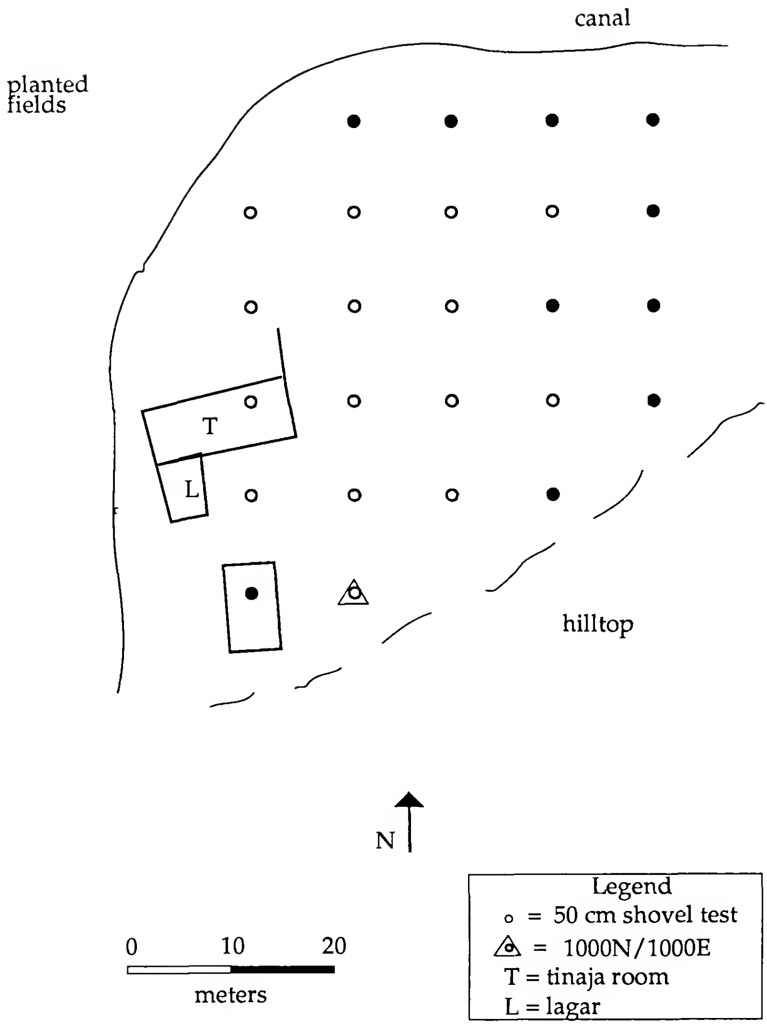

Figure 5.6: Plan View of Conde 2 Showing Test Locations
(blackened tests are sterile)

Table 5.6: Artifact Frequencies from Shovel Tests at Conde 2

	Number	Percent
Tin-Enameled Pottery	3	6.0
Lead-Glazed Coarse Earthenware	0	0
Coarse Earthenware	36	72.0
Stoneware/Porcelain	0	0
Other European Pottery	1	2.0
Pre-Colonial Artifacts	0	0
Glass	8	16.0
Table Utensils	0	0
Wood Construction Materials	1	2.0
Adornment	0	0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	1	2.0
Weaponry	0	0
Horse Hardware	0	0
Total	50	100

and west, while steep hillsides rise up along the site's southern and eastern edges (Figure 5.6).

Surface material collected from Conde 2 included Ironstone, shell-edged Pearlware, Whiteware, and Andean-made plain and tin-enameled pottery, in addition to glass, iron, cordage, and an iron Jew's harp. A scatter of similar material was found south of the site on the adjacent hilltop but informal subsurface investigations there located no subsurface artifacts.

Conde 2 covers a maximum of 50 meters north/south by 40 meters east/west. Twenty-five tests were excavated, of which 10 were sterile. In all, 50 artifacts were recovered that represented 6 artifact categories (Table 5.6). Coarse Earthenware accounted for 72% of the total, followed by Tin-Enameled Pottery (6%), Other European Pottery (2%), and Glass (16%). These Kitchen artifacts made up 96% of the site assemblage. Wood Construction and Unidentified Metal categories were each represented once (2% each).

Given the large percentage of Coarse Earthenware compared to that of the Other European Pottery, it could be that the site represents occupation during the late-eighteenth or early-nineteenth century. Some artifacts were recovered from depths between 50-75 centimeters below surface, but overall, deposits were shallow or contained very little evidence of activity. The potential for further work at Conde 2 to contribute significantly is thought to be minimal.

6) Sacatilla: This site is located on the west side of the valley, adjacent to kilometer marker #1152 of the Panamerican Highway. Sacatilla is quite large, situated on a bluff overlooking a steep dropoff along its eastern edge, which is bordered by an irrigation canal (Figure 5.7). The site includes a chapel at the north end that is now filled with a meter thick deposit of guano. Upslopes

Figure 5.7: Plan View of Sacatilla Showing Test Locations
(blackened tests are sterile)

surround the site to the north, west, and south, with a barren plain separating the bodega from the hillside to the west. A tinaja at Sacatilla bears the date 1773.

Surface material included a wide range of artifacts, including Ironstone, Porcelain, Pearlware, Whiteware, Stoneware, and Andean-made plain and tin-enameled pottery, as well as wooden stoppers, glass, and iron. Especially interesting items included a brass thimble, a wooden comb fragment, and a French matchbox made of cardboard. Also recovered was a tiny, circular black and white photograph of a mustachioed gentleman that was set in a metal alloy disk overlaid with a glass lens. Verbal inquiries among Moqueguanos suggested that this item may represent a locket or guardapelo, or perhaps served as a tie clip.

Sacatilla covers a maximum 150 meters north/south by 70 meters east/west. A total of 85 tests was excavated within this area, of which 12 were sterile. This site yielded more artifacts than any other, 387 (Table 5.7), and included 13 of the 16 artifact classifications (as did Molle). Coarse Earthenware comprised 46.5% of the total assemblage, followed by Glass (14.4%), Other European Pottery (13.7%), Tin-Enameled Pottery (6.7%), and Lead-Glazed Coarse Earthenware (1.5%). These Kitchen artifacts made up 82.8% of the total assemblage.

Wood Construction Materials comprised 4.9% of the artifacts from Sacatilla, while Unidentified Metal fragments and articles of Adornment accounted for 4.4% each. Industrial Artifacts, in this case wooden stoppers, made up 1.8% of the total, while Pre-Colonial Artifacts accounted for 0.8%. The Activities and Weaponry groups were each represented by one artifact (0.3% each).

Table 5.7: Artifact Frequencies from Shovel Tests at Sacatilla

	Number	Percent
Tin-Enameled Pottery	26	6.7
Lead-Glazed Coarse Earthenware	6	1.5
Coarse Earthenware	180	46.5
Stoneware/Porcelain	0	0
Other European Pottery	53	13.7
Pre-Colonial Artifacts	3	0.8
Glass	56	14.4
Table Utensils	0	0
Wood Construction Materials	19	4.9
Adornment	17	4.4
Personal Artifacts	0	0
Activities	1	0.3
Industrial Artifacts	7	1.8
Unidentified Metal	17	4.4
Weaponry	1	0.3
Horse Hardware	1	0.3
Total	387	100

Shovel tests revealed, not surprisingly, a concentration of grape seeds beside the lagares at the site's west side. Much to our surprise, however, was the discovery of two pre-Colonial burials in tests in the southeast corner of the site. At 75 centimeters below surface, a cranium was noted in unit 970N/1040E with a small inverted basket placed as a hat and a pointed copper clasp that was apparently used as a closure for clothing. The interment was found at the edge of a slight hillside, a common location for burials in the region, and was covered with cane, also a common pre-Colonial burial practice. We placed a piece of sheet metal over the individual as protection, and the shovel test was suspended and backfilled.

A second individual was uncovered simultaneously at a distance of approximately 15 meters to the southwest. Unit 960N/1030E was located in a presumed tonel room at the southern edge of the site, and was found to contain a burial at 30 centimeters below surface wrapped in coarse, dark brown cloth. Only the unit profile was excavated to reveal a layer of sticks that was placed over the burial. The unit was suspended at 60 centimeters below surface and backfilled.

In addition to these areas, which hold definite potential for prehistoric investigation, further work at Sacatilla would be beneficial. Structural remains at the site are fairly well preserved and merit additional efforts in that regard. Data suggest eighteenth and nineteenth century occupation, and further testing would be needed to determine the presence of earlier deposits. Domestic refuse is concentrated in the central part of the site, south of the tinaja rooms, which appears to have at one time been the location of presumably residential structures. While these structures have been partially bulldozed, the depth of cultural deposits in that area suggest that subsurface remains are concentrated between 0-90 centimeters below surface. Sacatilla

has the potential to contribute further to an understanding of late Colonial occupation, if not the seventeenth century as well.

7) Sacatita: The well-preserved site of Sacatita is located less than one kilometer north of Sacatilla on the west side of the valley. Situated on a narrow bluff, a number of structures lie between a steep dropoff to the east, and a hillside to the west (Figure 5.8). An irrigation canal and agricultural fields lie east of the site, and a sand roadway runs between the bodega and the hillside to the west. The bluff on which the site sits is very narrow and merges into the roadway at both ends of the site.

Artifacts recovered from the surface at Sacatita included Ironstone, brown salt glazed stoneware, and Andean-made plain and tin-enameled pottery, as well as glass, wooden stoppers, and an iron horse bit. A Bolivian bronze seal, probably used in identifying mercantile shipments, was also recovered that bore the date 1856. The image on the seal depicts two llamas, seated and facing each other beneath a tree. The seal is imprinted with the words "Republica Boliviana" and some information that may be transaction-specific that reads "F1" and "S4."

Shovel tests at Sacatita were placed across an area measuring a maximum of 150 meters north/south by 50 meters east/west. A total of 50 tests was dug at the site, of which 14 were sterile. Artifacts recovered numbered 102, with 12 categories represented (Table 5.8). Coarse Earthenware was most common, making up 41.2% of the assemblage, followed by Glass (24.5%), Other European Pottery (5.9%), Tin-Enameled Pottery (4.9%), Lead-Glazed Coarse Earthenware (2.9%), and Stoneware/Porcelain (0.9%). These Kitchen artifacts comprised 80.3% of the site assemblage. Additional artifacts included Wood Construction Materials, articles of Adornment, and

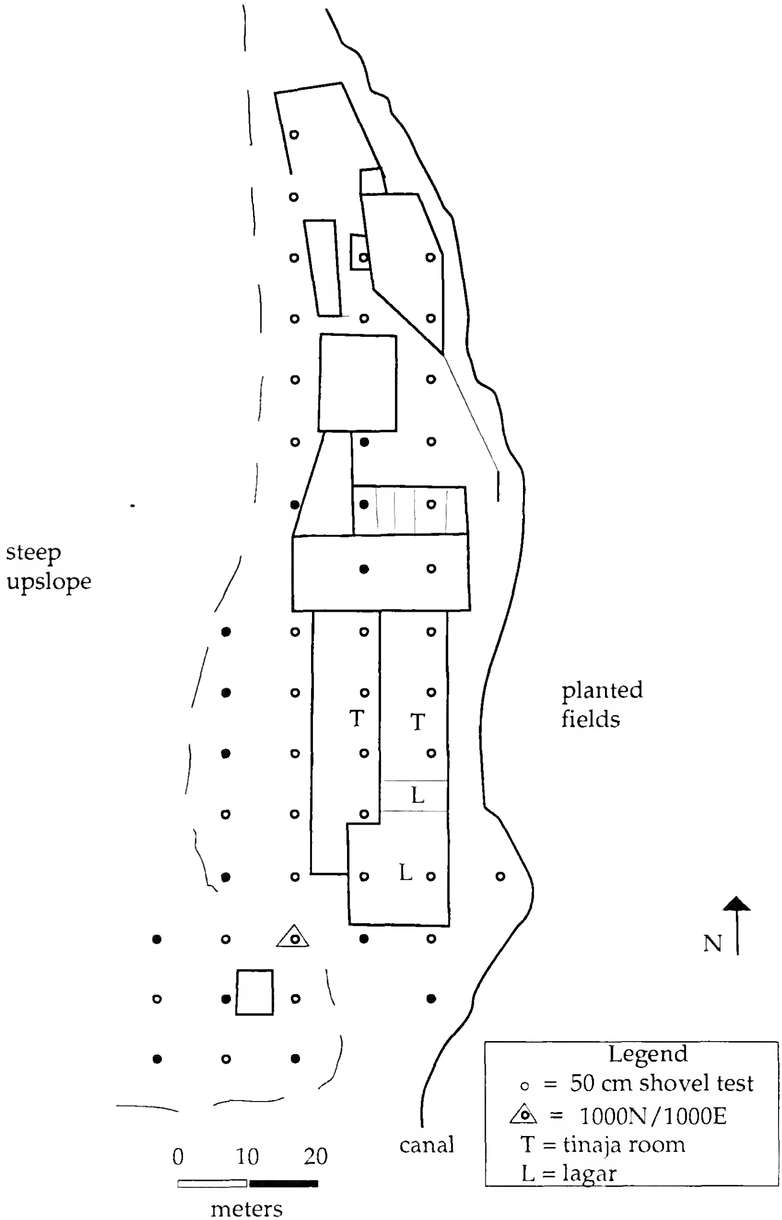

Figure 5.8: Plan View of Sacatita Showing Test Locations
(blacked tests are sterile)

Table 5.8: Artifact Frequencies from Shovel Tests at Sacatita

	Number	Percent
Tin-Enameled Pottery	5	4.9
Lead-Glazed Coarse Earthenware	3	2.9
Coarse Earthenware	42	41.2
Stoneware/Porcelain	1	0.9
Other European Pottery	6	5.9
Pre-Colonial Artifacts	0	0
Glass	25	24.5
Table Utensils	0	0
Wood Construction Materials	5	4.9
Adornment	5	4.9
Personal Artifacts	2	2.0
Activities	0	0
Industrial Artifacts	1	0.9
Unidentified Metal	5	4.9
Weaponry	0	0
Horse Hardware	2	2.0
Total	102	99.9

Unidentified Metal fragments, which each made up 4.9% of the total. Personal Artifacts and Horse Hardware each accounted for 2% of the assemblage, while Industrial Artifacts made up 0.9%.

Based on test results, the northern part of Sacatita is relatively modern, with small concrete-floored structures that may have served as storage facilities or worker housing at one time. Shallow and largely sterile deposits lay beneath these surfaces. A small oven that may have been used to bake bread is also present in the northeastern part of the site.

The south central portion of the site, at least as of 1990, reflects one of the best preserved bodega complexes in the valley. In the tinaja room, the intact cane roof and in-situ tinajas provide a dramatic picture of how these rooms looked and functioned during the height of productivity at Sacatita. A trough with drain spouts to individual tinajas is still preserved, and many of the tinajas retain a circular limestone lid that covered the vessel during fermentation and storage. Dates on the vessels range from 1774 to 1799.

A pre-Colonial site was located during a lunchtime stroll along the hillside west of Sacatita. Undecorated rimsherds, some shell, and an ovoid stone tool or blank were recovered from an area measuring approximately 15 by 50 meters. From this hilltop the trunk-shaped geological formation of Cerro Baul can be seen in the distance to the north, which may have played a role in the selection of this location as a pre-Colonial site.

Sacatita should be the subject of an avid preservation initiative in Moquegua. Structurally, the site appears to represent what an almost intact, functioning bodega complex looked like. Based on tinaja and artifactual data, the site appears to represent late eighteenth and nineteenth century occupation. Additional data revealing a seventeenth century component could be revealed through more extensive excavation. Although the number

of artifacts recovered from the site was not large, and no clear areas of concentration were identified through shovel testing, further examination of Sacatita through excavation is merited based on overall site attributes.

8) Chamos 1: This site is located approximately 100 meters east of the Panamerican Highway, adjacent to where kilometer marker #1151 would be if it were still in place. Uphill slopes mark the edges of the site to the north and east. A canal runs along the southern and western borders (Figure 5.9), with fields and a modern residence located downhill to the west. Aerial photographs taken previous to canal construction indicated this area was once a tinaja room. Tinajas at Chamos 1 bear dates of 1762 to 1816.

Surface artifacts from the site were numerous, including Ironstone, Annular Ware, Whiteware, and Andean-made pottery. Fragments of iron, brass, and glass were recovered, as well as a wooden comb fragment, wooden stoppers, and part of a barrel lid. Cordage and twentieth century items were also noted. Large holes had been previously dug along both the east and west sides of the site, which hampered testing.

Tests at Chamos 1 were placed within an area measuring a maximum of 60 meters north/south by 60 meters east/west. A total of 26 tests was dug, of which 6 were sterile. From these, 254 artifacts were recovered, which represented 10 of the 16 classifications (Table 5.9). Coarse Earthenware was the most frequent (37.4%), followed by Glass (27.5%), Other European Pottery (21.3%), Tin-Enameled Pottery (5.1%), and Lead-Glazed Coarse Earthenware (1.6%). These Kitchen artifacts accounted for 93.3% of the site assemblage. Additionally, articles of Adornment made up 3.1%, followed by Wood Construction Materials and Unidentified Metal (both at 1.6%), one Pre-Colonial lithic flake, and one Industrial artifact (each representing 0.4%).

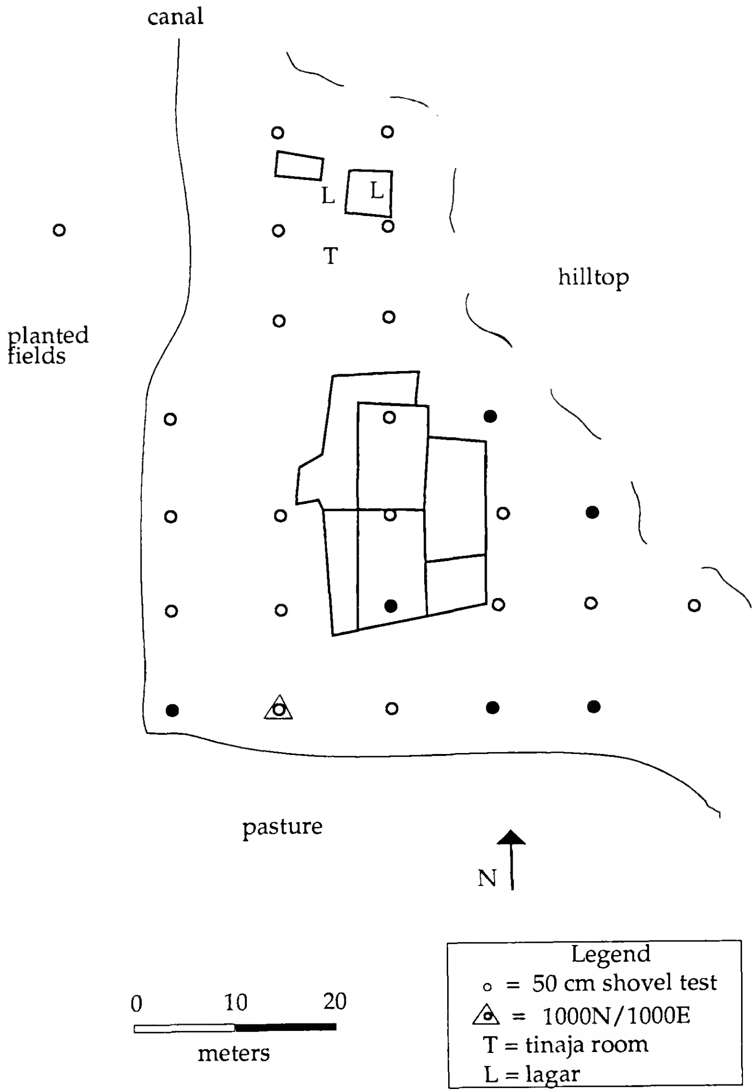

Figure 5.9: Plan View of Chamos 1 Showing Test Locations (blackened tests are sterile)

Table 5.9: Artifact Frequencies from Shovel Tests at Chamos 1

	Number	Percent
Tin-Enameled Pottery	13	5.1
Lead-Glazed Coarse Earthenware	4	1.6
Coarse Earthenware	95	37.4
Stoneware/Porcelain	0	0
Other European Pottery	54	21.3
Pre-Colonial Artifacts	1	0.4
Glass	70	27.5
Table Utensils	0	0
Wood Construction Materials	4	1.6
Adornment	8	3.1
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	1	0.4
Unidentified Metal	4	1.6
Weaponry	0	0
Horse Hardware	0	0
Total	254	100

Artifacts were distributed fairly evenly throughout the site, with most occurring between 0-70 centimeters below surface. No volcanic ash deposits were encountered in any of the tests. The data suggest that the site was occupied during the eighteenth and nineteenth centuries, although additional work could reveal an earlier component.

9) Soledad: This bodega is located on the west side of the valley, approximately 1.5 kilometers north of Sacatita. Two different owners lay claim to and inhabit the structures, and only the owner of the southernmost gave permission for testing. The site is bordered by an irrigation canal and steep dropoff to the east and south, and a hill to the west. Tinajas at the site bear dates between 1772 and 1811.

Very little surface material was found at the site. Three plain sherds and four tin-enameled sherds were recovered, one of which was Faience. The tested portion of Soledad, for which no map is included, measured 60 meters north/south by 40 meters east/west. A total of 21 tests was excavated, of which 2 were sterile.

Artifacts recovered from testing numbered 202 and represented 10 artifact categories (Table 5.10). The largest percentage comprised Coarse Earthenware (73.8%), followed by Glass (9.9%), Other European Pottery (5.9%), Tin-Enameled Pottery (1%), and Lead-Glazed Coarse Earthenware (0.5%). These Kitchen artifacts accounted for 91.1% of the total assemblage. Additionally, one artifact from the Adornment, Activities, Industrial, and Unidentified Metal categories was recovered, each making up 0.5% of the total assemblage. Finally, pre-Colonial Artifacts comprised 6.9% of the material recovered from Soledad. These included both lithics and fiber-

Table 5.10: Artifact Frequencies from Shovel Tests at Soledad

	Number	Percent
Tin-Enameled Pottery	2	1.0
Lead-Glazed Coarse Earthenware	1	0.5
Coarse Earthenware	149	73.8
Stoneware/Porcelain	0	0
Other European Pottery	12	5.9
Pre-Colonial Artifacts	14	6.9
Glass	20	9.9
Table Utensils	0	0
Wood Construction Materials	0	0
Adornment	1	0.5
Personal Artifacts	0	0
Activities	1	0.5
Industrial Artifacts	1	0.5
Unidentified Metal	1	0.5
Weaponry	0	0
Horse Hardware	0	0
Total	202	100

tempered pottery, which clustered at the base of the upslope along the western side of the bodega.

Data from Soledad are incomplete, as only the southern half of the site was investigated. Artifacts and tinaja dates indicate eighteenth century occupation, but far more evident was a pre-Colonial component. Testing revealed a very early component located at the base of the hill at the west of the site, as others have been noted on hillsides adjacent to other wineries. A lens of volcanic ash was also encountered slightly southeast of this area near the southwestern corner of the structural complex. In hindsight, it seems possible that the large percentage of undecorated Coarse Earthenware recovered at Soledad (73.8%), actually reflects overwhelmingly prehistoric, rather than Colonial, use of this part of the site. Attempts to recover Colonial artifacts from below the ash were unsuccessful. Although investigation of this area by prehistorians is merited, additional work focusing on the Colonial Period, at least at the southern end of Soledad, is not recommended.

10) <u>Navarretes</u>: Navarretes is a small site located west of the Panamerican Highway on a dirt road that turns off the highway approximately one-half kilometer north of highway marker #1149. It is one of the few sites in the southern part of the valley that is located within the river basin and not on a bluff along the valley edge. Agricultural fields have encroached considerably upon the site, so much so that as of 1987 little more than the domestic structures remained standing (Figure 5.10). Tinaja rooms, outbuildings, and lagares had been razed, and cultural deposits in the fields were, as far as could be determined, completely disturbed. Visible dates on uprooted tinajas at the site ranged from 1763 to 1818.

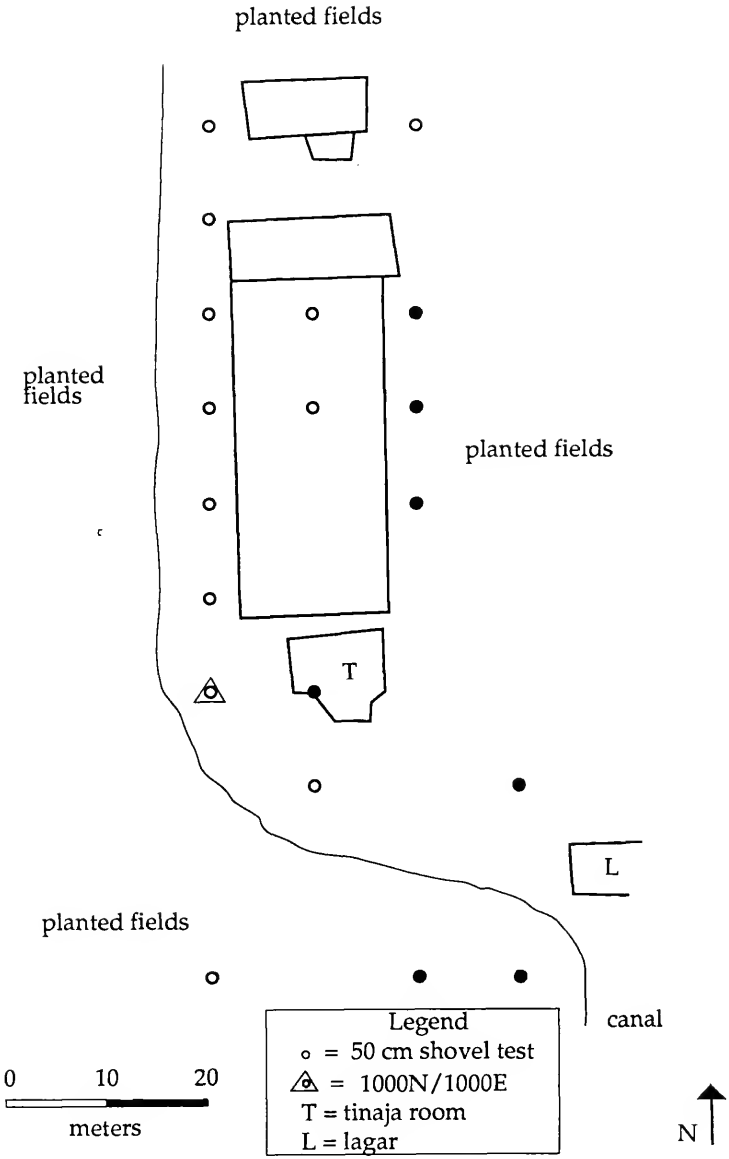

Figure 5.10: Plan View of Navarettes Showing Test Locations
(blackened tests are sterile)

Table 5.11: Artifact Frequencies from Shovel Tests at Navarretes

	Number	Percent
Tin-Enameled Pottery	4	4.5
Lead-Glazed Coarse Earthenware	3	3.4
Coarse Earthenware	46	52.3
Stoneware/Porcelain	0	0
Other European Pottery	13	14.8
Pre-Colonial Artifacts	0	0
Glass	15	17.1
Table Utensils	0	0
Wood Construction Materials	3	3.4
Adornment	1	1.1
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	3	3.4
Weaponry	0	0
Horse Hardware	0	0
Total	88	100

Testable areas at Navarretes covered a maximum of 100 meters north/south by 40 meters east/west, within which no surface artifacts were recovered. A total of 19 shovel tests was excavated, of which 7 were sterile. Artifacts recovered numbered 88, and represented 8 artifact categories (Table 5.11). The most frequent was Coarse Earthenware (52.3%), followed by Glass (17.1%), Other European Pottery (14.8), Tin-Enameled Pottery (4.5%), and Lead-Glazed Coarse Earthenware (3.4%). Kitchen artifacts accounted for 92.1% of the total assemblage. Additional finds included Wood Construction Materials (3.4%), Unidentified Metal (3.4%), and one stone bead from the Adornment group (1.1%).

Data from Navarretes suggest that the site was in operation during the eighteenth and nineteenth centuries. Artifacts recovered were few, coming primarily from 0-75 centimeters below surface, and did not appear to be concentrated in any of the few open spaces at the site. Given the degree of destruction, further archaeological testing at Navarretes is not highly recommended. As the site is one of the few bodegas left standing in the river basin of the southern valley, however, it is hoped that the remnants of the Navarretes structures remain intact.

11) <u>Santo Domingo</u>: Santo Domingo is located less than one-half kilometer west of Navarretes along the same sand road. An irrigation canal and agricultural fields border the site to the east, while steep hillsides rise up along the north and west edges of the site. Dual ownership of the property, and the lack of permission for testing the southern portion of the site, limited the extent to which testing was possible.

Surface collection at Santo Domingo yielded mostly Andean-made pottery, although one fragment of Whiteware was also recovered. Amethyst

Table 5.12: Artifact Frequencies from Shovel Tests at Santo Domingo

	Number	Percent
Tin-Enameled Pottery	6	5.9
Lead-Glazed Coarse Earthenware	1	1.0
Coarse Earthenware	56	55.4
Stoneware/Porcelain	0	0
Other European Pottery	5	4.9
Pre-Colonial Artifacts	1	1.0
Glass	21	20.8
Table Utensils	0	0
Wood Construction Materials	1	1.0
Adornment	3	3.0
Personal Artifacts	1	1.0
Activities	1	1.0
Industrial Artifacts	1	1.0
Unidentified Metal	4	4.0
Weaponry	0	0
Horse Hardware	0	0
Total	101	100

glass, a wooden comb and barrel stopper, and fragments of brass and iron were also found. An almost completely restorable pot was recovered from the tinaja room, a good example of the tostador form used in the Andes for toasting corn (Figure 7.3). Visible dates on tinajas at the site ranged from 1755 to 1816.

Testable areas at Santo Domingo, for which no map is included herein, covered a maximum of 100 meters north/south by 35 meters east/west. Twenty-four tests were excavated, of which 3 were sterile. A total of 101 artifacts was recovered, which represented 12 categories (Table 5.12). Coarse Earthenware comprised 55.4% of the assemblage, followed by Glass (20.8%), Tin-Enameled Pottery (5.9%), Other European Pottery (4.9%), and Lead-Glazed Coarse Earthenware (1%). These Kitchen artifacts accounted for 88% of those recovered. Additionally, Unidentified Metal fragments made up 4% of the artifacts, articles of Adornment accounted for 3%, and one element (1%) from each of the Wood Construction, Personal, Activities, Pre-Colonial, and Industrial categories rounded out the assemblage.

Data from Santo Domingo are incomplete, given that only half of the site was investigated. Artifacts were recovered primarily between 0-80 centimeters, and no significant concentrations of artifacts were identified. Occupation of the site appears to have spanned the eighteenth and nineteenth centuries. No volcanic ash was encountered that would suggest the existence of earlier components, although further excavation might prove otherwise.

12) Corpanto Viejo: This site is located 50 meters east of the Panamerican Highway at kilometer marker #1147. Situated on a low rise amid extremely rocky terrain, Corpanto Viejo appears to have lacked domestic structures, as

Table 5.13: Artifact Frequencies from Shovel Tests at Corpanto Viejo

	Number	Percent
Tin-Enameled Pottery	0	0
Lead-Glazed Coarse Earthenware	0	0
Coarse Earthenware	7	58.3
Stoneware/Porcelain	0	0
Other European Pottery	0	0
Pre-Colonial Artifacts	0	0
Glass	2	16.7
Table Utensils	0	0
Wood Construction Materials	0	0
Adornment	3	25.0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	0	0
Weaponry	0	0
Horse Hardware	0	0
Total	12	100

eight tinajas and four lagares are the only visible bodega components. A canal encircles the western and southern edges of the site, which lie above agricultural fields. To the north and east of the industrial remnants is a rocky hillside, much of which has eroded down onto the site.

Surface collection at Corpanto Viejo yielded 14 artifacts, including Ironstone, Whiteware, and Andean-made pottery. Also recovered were amethyst and olive glass, an iron fragment, a spike, and a horseshoe. The area tested at Corpanto Viejo, for which no map is included, measured a maximum of 30 meters north/south by 60 meters east/west. Subsurface tests numbered 16, of which nine were sterile. Most of the positive tests bottomed out on rocky, sterile subsoil at 10 centimeters below surface.

Only 12 artifacts, representing three classifications, were recovered from testing at Corpanto Viejo (Table 5.13). Of these, the largest percentage was Coarse Earthenware (58.3%), followed by Adornment artifacts (a pewter button and two pieces of textile) that accounted for 25% of the total, and Glass (16.7%).

Data from Corpanto Viejo are not highly illuminating, with surface collection proving much more useful in drawing temporal conclusions than shovel testing. Artifacts reflect nineteenth, and the possibility for slight eighteenth, century use of the site. Given the extremely fragmentary nature of the archaeological record at Corpanto Viejo, further work is not recommended.

13) <u>Corpanto Ghersi</u>: Slightly northeast of the ruins of Corpanto Viejo, Corpanto Ghersi is located one-half kilometer north of Panamerican Highway marker #1147 and 100 meters east of the highway itself. Tinajas at the site bear dates from 1700 to 1810. Agricultural lands lie north, west, and south of

the bodega, and a flat, barren plain is present to the east (Figure 5.11). Unfortunately, the construction of a concrete irrigation canal approximately 8 feet deep has bisected the site north/south, and additional modern construction has capped and/or disturbed the northern and southern portions. Corpanto Ghersi is currently inhabited and, at the time of our visit, was the scene of a great deal of both human and animal activity.

Eleven artifacts were recovered during surface survey at the site. These included plain and tin-enameled Andean-made pottery, an iron button, and a blue glass decanter top. Of the tin-enameled fragments, it should be noted that one represented a decorative tile of Escapalaque Polychrome (described in Chapter 7), the only tile noted during all of the valley investigations.

Testable areas at Corpanto Ghersi covered a maximum of 120 meters north/south by 100 meters east/west. Forty-six shovel tests were excavated, of which 11 were sterile. Artifacts recovered numbered 303, which represented 11 artifact categories (Table 5.14). Coarse Earthenware accounted for the greatest percentage (44.5%), followed by Glass (26.%), Other European Pottery (9.2%), Lead-Glazed Coarse Earthenware (5.6%), Tin-Enameled Pottery (2%), and Table Utensils (0.7%). These Kitchen artifacts made up 88.1% of the assemblage. Additional artifacts included Unidentified Metal (4.3%), Wood Construction Materials (3.6%), and articles of Adornment (3%). Categories that accounted for less than 1% of the assemblage were the Pre-Colonial (0.3%) and and Industrial (0.7%) groupings.

Cultural deposits at Corpanto Ghersi are not concentrated in any one area, but are delimited to the central part of the site by disturbed areas to the north and south. Artifacts were recovered primarily from between 0-90 centimeters below surface, and no volcanic ash was encountered during testing. Occupation of the site covered the eighteenth through nineteenth

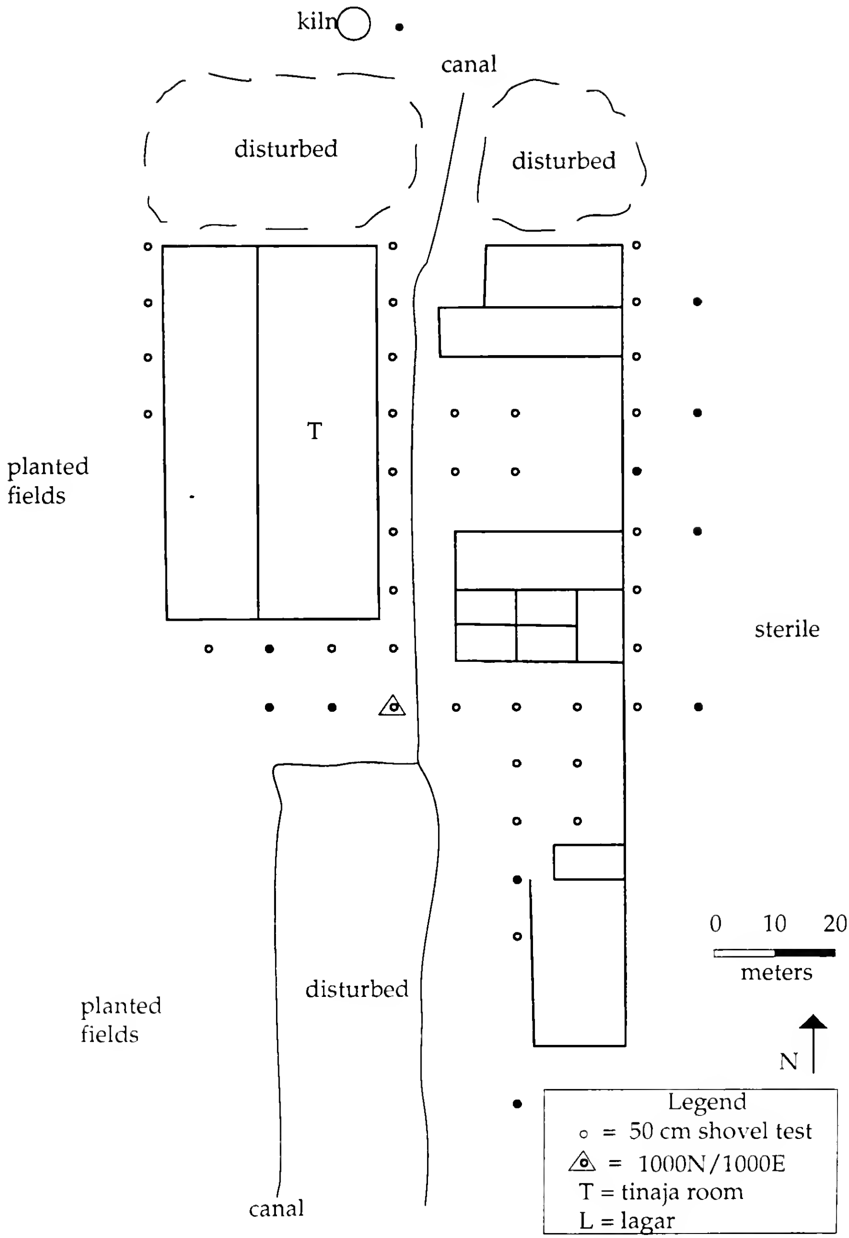

Figure 5.11: Plan View of Corpanto Ghersi Showing Test Locations
(blackened tests are sterile)

Table 5.14: Artifact Frequencies from Shovel Tests at Corpanto Ghersi

	Number	Percent
Tin-Enameled Pottery	6	2.0
Lead-Glazed Coarse Earthenware	17	5.6
Coarse Earthenware	135	44.5
Stoneware/Porcelain	0	0
Other European Pottery	28	9.2
Pre-Colonial Artifacts	1	0.3
Glass	79	26.1
Table Utensils	2	0.7
Wood Construction Materials	11	3.6
Adornment	9	3.0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	2	0.7
Unidentified Metal	13	4.3
Weaponry	0	0
Horse Hardware	0	0
Total	303	100

centuries, and further work could potentially uncover evidence for seventeenth century usage as well.

14) Omo Cruz Verde: This site is located approximately 50 meters north of kilometer marker #1144, at a distance of about 150 meters east of the Panamerican Highway. As seen from the highway, notable landmarks at the bodega include a large purple bougainvillea and an adobe bread oven. The site lies on a slight rise above agricultural fields to the west, and a steeply sloping hillside to the east (Figure 5.12). Agricultural fields lie north and south of the bodega, and an irrigation canal runs along the western edge of the site. Tinaja dates that were visible range from 1772 to 1799.

No surface collection was made at Omo Cruz Verde due to the modernity of refuse left by the present site inhabitants. The tested portion of the site measured a maximum of 60 meters north/south by 70 meters east/west. A total of 18 tests was excavated, of which 2 were sterile. Artifacts recovered from shovel tests numbered 96 and represented 11 categories (Table 5.13). The most frequent artifact category at Omo Cruz Verde was Other European Pottery (31.2%), the only site at which this was the case. Coarse Earthenware comprised the second largest classification (24%), followed by Glass (19.8%), Lead-Glazed Coarse Earthenware (6.3%), and Tin-Enameled Pottery (2.1%). In all, Kitchen artifacts accounted for 83.4% of the site assemblage. The remainder of the artifacts recovered consisted of Wood Construction Materials (5.2%), Unidentified Metal (4.2%), articles of Adornment (4.2%), and one element from the Personal and Horse Hardware categories (1% each).

Artifacts at Omo Cruz Verde were concentrated in the garden along the site's western edge. This area, which has been partially churned up

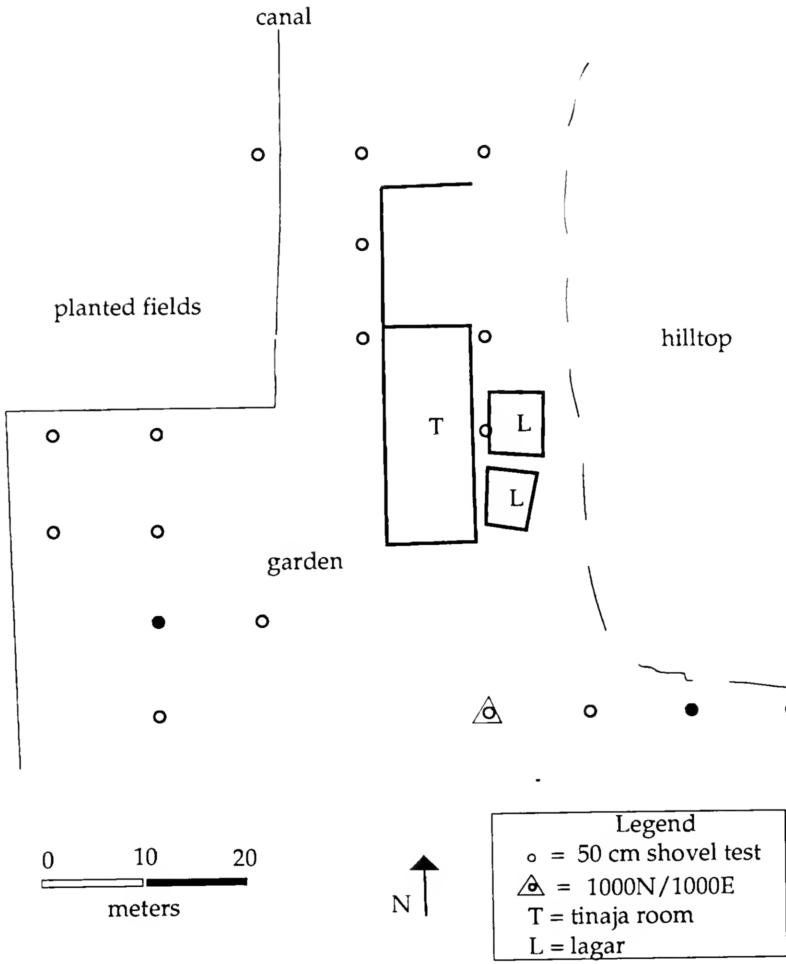

Figure 5.12: Plan View of Omo Cruz Verde Showing Test Locations
(blackened tests are sterile)

Table 5.15: Artifact Frequencies from Shovel Tests at Omo Cruz Verde

	Number	Percent
Tin-Enameled Pottery	2	2.1
Lead-Glazed Coarse Earthenware	6	6.3
Coarse Earthenware	23	24.0
Stoneware/Porcelain	0	0
Other European Pottery	30	31.2
Pre-Colonial Artifacts	1	1.0
Glass	19	19.8
Table Utensils	0	0
Wood Construction Materials	5	5.2
Adornment	4	4.2
Personal Artifacts	1	1.0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	4	4.2
Weaponry	0	0
Horse Hardware	1	1.0
Total	96	100

periodically, contained artifacts between 0-105 centimeters below surface. No volcanic ash was seen in any of the tests. Data from the tests are few, but combined with tinaja dates, suggest an eighteenth and nineteenth century occupation. Additional work at the site is not highly recommended.

15) Omo Zapata Bajo: This site is located approximately 50 meters south of kilometer marker #1143, at about 100 meters east of the Panamerican Highway. Agricultural fields lie beyond an irrigation canal to the west of the complex, with rocky hillsides bordering the site to the north, east, and south (Figure 5.13). Most of the ruins sit atop a slight slope, with the exception of a kiln located in an adjacent lowlying area to the southeast. Visible tinaja dates at Omo Zapata Bajo range from 1742 to 1756, and the site is still occupied today.

No surface material was collected from Omo Zapata Bajo. Shovel testing covered a maximum area of 80 meters north/south by 80 meters east/west. Thirty four tests were excavated, of which 11 were sterile. Artifacts recovered numbered 120 and represented 10 categories, with Coarse Earthenwares the most frequent at 49.2% of the total assemblage (Table 5.16). Glass and Other European Pottery both accounted for 12.5%, while Lead-Glazed Coarse Earthenware comprised the greatest single incidence for this category in the valley (6.6%). Tin-Enameled Pottery (4.2%) was the least frequent member of the Kitchen artifacts, which accounted for 85% of the total artifacts from the site. Additionally, Unidentified Metal fragments made up 6.6% of the total assemblage, followed by articles of Adornment (5%), Pre-Colonial Artifacts (1.7%), Wood Construction Materials (0.8%), and Horse Hardware (0.8%).

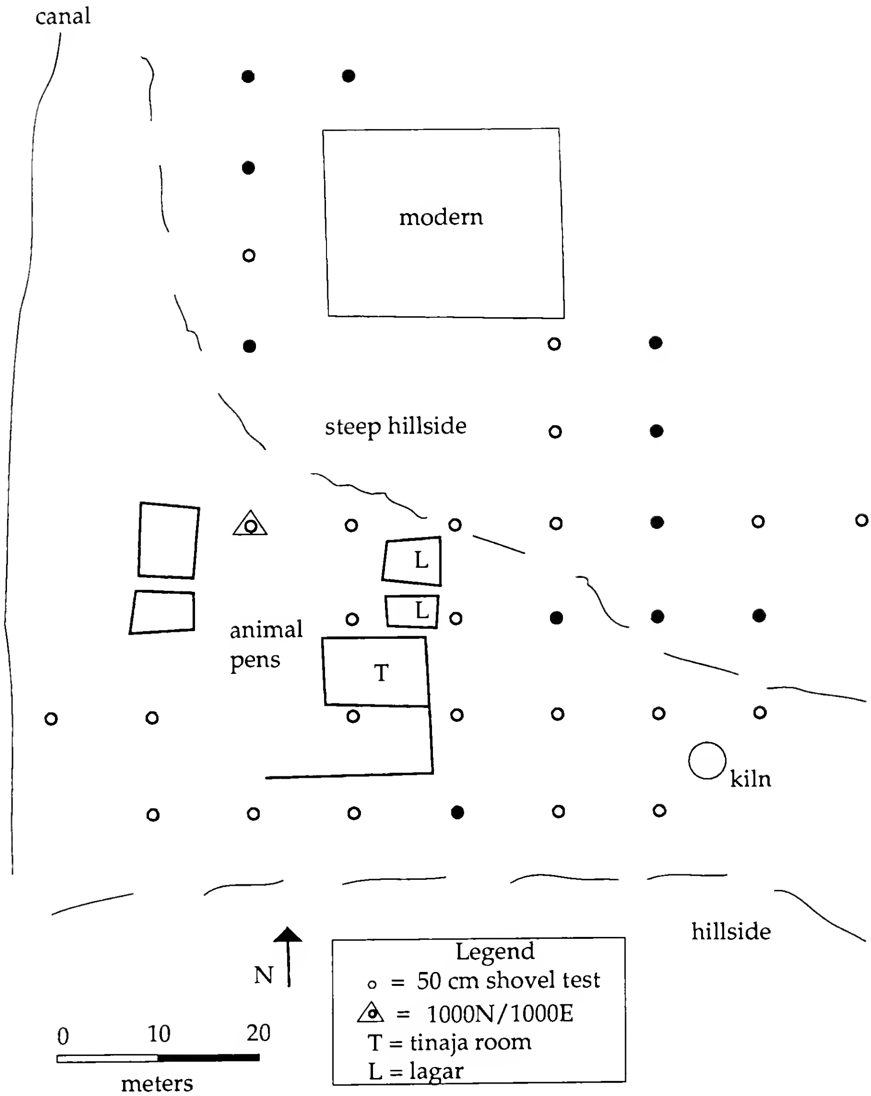

Figure 5.13: Plan View of Omo Zapata Bajo Showing Test Locations
(blackened tests are sterile)

Table 5.16: Artifact Frequencies from Shovel Tests at Omo Zapata Bajo

	Number	Percent
Tin-Enameled Pottery	5	4.2
Lead-Glazed Coarse Earthenware	8	6.6
Coarse Earthenware	59	49.2
Stoneware/Porcelain	0	0
Other European Pottery	15	12.5
Pre-Colonial Artifacts	2	1.7
Glass	15	12.5
Table Utensils	0	0
Wood Construction Materials	1	0.8
Adornment	6	5.0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	8	6.6
Weaponry	0	0
Horse Hardware	1	0.8
Total	120	99.9

Artifacts at Omo Zapata Bajo were concentrated at the eastern side of the site in the lowlying area between the industrial structures and the kiln. No volcanic ash was encountered, and cultural material was recovered primarily between 0-75 centimeters below surface. Data reflect eighteenth and nineteenth century occupation, but given documentary references to the Omo sector of the valley (see Kuon Cabello 1980 and ADM entries in the bibliography), additional work at the site has the potential to recover data from earlier centuries and toward a comparison with the other Omo bodegas.

16) Calaluna: Calaluna is located on the west side of the valley approximately three-quarters of a kilometer south of highway marker #1143. The north and east margins of the site drop off sharply toward the river bed, while to the south are located agricultural fields (Figure 5.14). A flat, barren plain stretches off from the western edge of the site. Visible tinaja dates ranged from 1726 to 1816.

No surface collection was recovered from Calaluna, which is currently home to both human and animal inhabitants. In addition to the standing adobe structures, a number of pens made of cane have been constructed for chickens, cuys, goats, pigs, dogs, etc. Excluding these areas, testable portions of the site covered a maximum of 100 meters north/south by 90 meters east/west. Within this area a total of 44 tests was excavated, of which 10 were sterile.

Artifacts recovered from Calaluna numbered 90 and represented 10 categories (Table 5.17). Coarse Earthenwares accounted for 49% of the site assemblage, followed by Glass (14.4%), Other European Pottery (12.2%), and Tin-Enameled Pottery (3.3%). These Kitchen artifacts made up 78.9% of the site total. With respect to the other categories, Unidentified Metal comprised

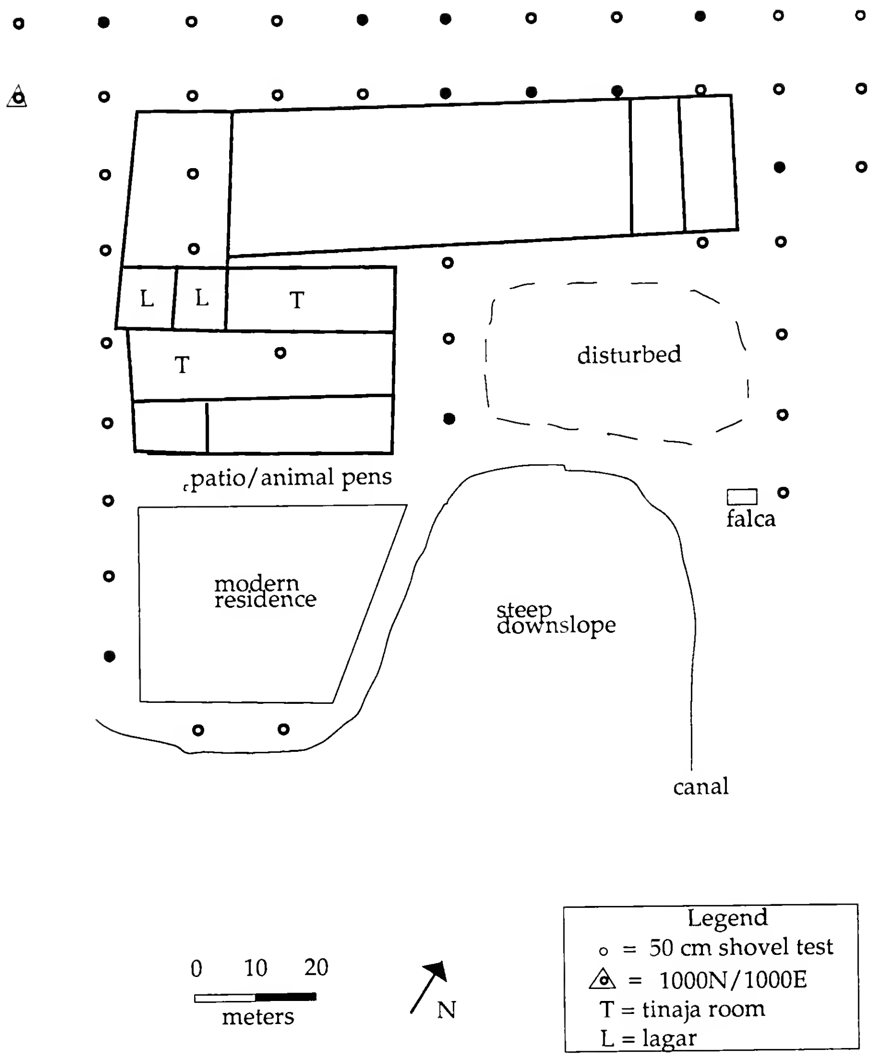

Figure 5.14: Plan View of Calaluna Showing Test Locations
(blackened tests are sterile)

Table 5.17: Artifact Frequencies from Shovel Tests at Calaluna

	Number	Percent
Tin-Enameled Pottery	3	3.3
Lead-Glazed Coarse Earthenware	0	0
Coarse Earthenware	44	49.0
Stoneware/Porcelain	0	0
Other European Pottery	11	12.2
Pre-Colonial Artifacts	0	0
Glass	13	14.4
Table Utensils	0	0
Wood Construction Materials	1	1.1
Adornment	2	2.2
Personal Artifacts	0	0
Activities	1	1.1
Industrial Artifacts	3	3.3
Unidentified Metal	11	12.2
Weaponry	0	0
Horse Hardware	1	1.1
Total	90	99.9

12.2% of the assemblage, followed by Industrial Artifacts (3.3%), Adornment (2.2%), and one element each from Wood Construction, Activities, and Horse Hardware (1.1%, respectively).

Artifacts at Calaluna were recovered primarily between 0-60 centimeters below surface, and a small concentration was noted in the extreme northeast corner of the site outside the main structure. No volcanic ash was encountered in any tests. Artifactual and tinaja data reflect eighteenth and nineteenth century occupation, and given the 1726 date noted on one jar, the possibility exists for recovering seventeenth century remains as well. The large residential area in the southern part of the complex provided a gap in our ability to test, and may contain earlier deposits of interest to further studies at Calaluna.

17) Condesa: The Condesa bodega is located approximately one-half kilometer south of the Arequipa road, at a distance of 100 meters east of the Panamerican highway. The site is bordered on all sides by agricultural fields (Figure 5.15), and on the day shovel testing took place it was in the process of being robbed for adobes. A great deal of disturbance was present at the site due to robbing of building material, as well as the encroachment of agricultural land.

Surface collection recovered only three Andean-made tin-enameled sherds. Testable portions of the site were quite limited due to disturbances, and covered a maximum of 40 meters north/south by 45 meters east/west. Within this area 17 tests were excavated, all of which were positive. Not many artifacts (N = 34) were recovered from Condesa, however (Table 5.18). The largest percentage (47.1%) was Coarse Earthenware, followed by Glass (26.5%) Other European Pottery (2.9%), and Lead-Glazed Coarse Earthenware

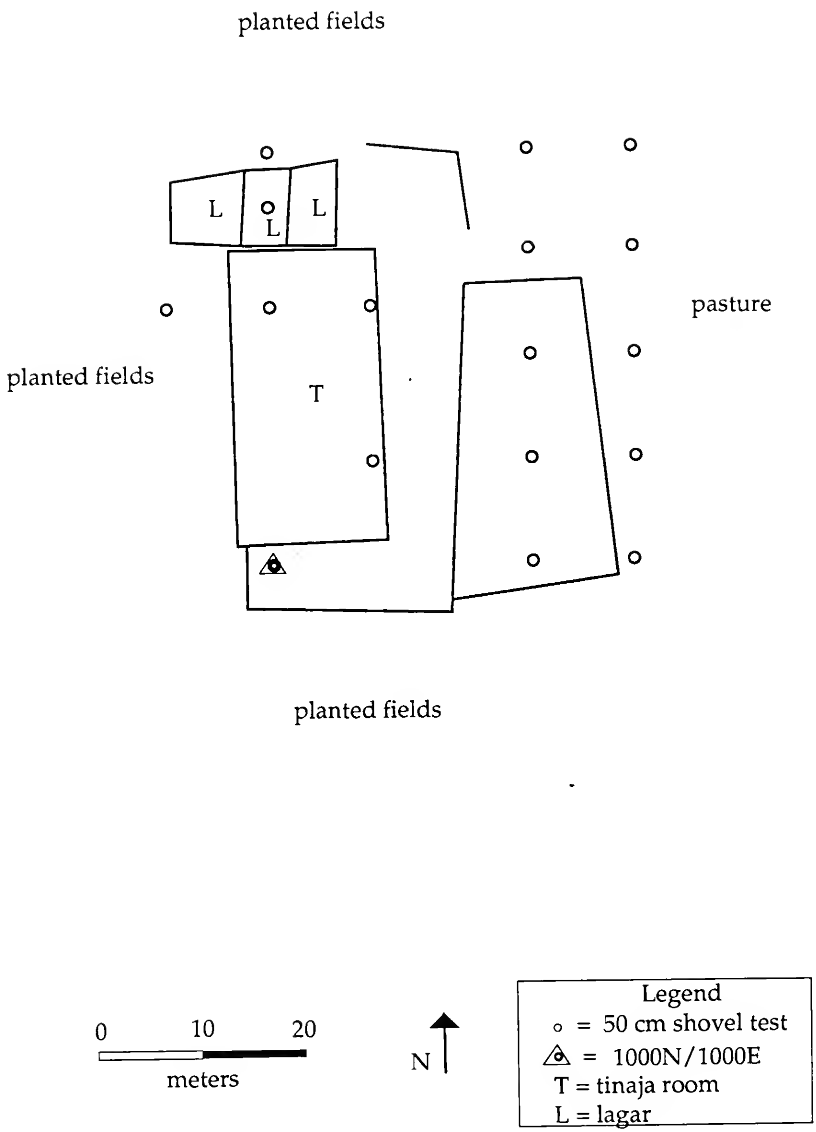

Figure 5.15: Plan View of Condesa Showing Test Locations
(blackened tests are sterile)

Table 5.18: Artifact Frequencies from Shovel Tests at Condesa

	Number	Percent
Tin-Enameled Pottery	0	0
Lead-Glazed Coarse Earthenware	1	2.9
Coarse Earthenware	16	47.1
Stoneware/Porcelain	0	0
Other European Pottery	1	2.9
Pre-Colonial Artifacts	0	0
Glass	9	26.5
Table Utensils	0	0
Wood Construction Materials	2	5.9
Adornment	0	0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	5	14.7
Weaponry	0	0
Horse Hardware	0	0
Total	34	100

(2.9%). In all, Kitchen artifacts accounted for 79.4% of the total. Additional artifacts included Unidentified Metal (14.7%) and Wood Construction Materials (5.9%).

Testing at Condesa revealed no artifact concentrations, and the few recovered remains came primarily from between 0-80 centimeters below surface. No volcanic ash was encountered in any of the tests. While the site appears to represent seventeenth and eighteenth occupation, further work is not highly recommended.

18) Sorsano: This winery is located on the western side of the valley, approximately one kilometer northeast of Calaluna. The site sits atop a linear rise that runs roughly north/south, with steep dropoffs to the west, north, and east. Permission to work at the site was gained only from the owner of the northern portion; the southern end of the bodega was untested due to the refusal of the second owner, an entrepreneur in guano wholesaling, to allow us entry. Visible tinaja dates at the site covered a short span, ranging from 1761 to 1767.

Surface collection at Sorsano yielded Ironstone, Pearlware, Whiteware, and Andean-made plain and decorated pottery. In addition to miscellaneous metal fragments, two iron and one wooden handle fragments, a brass spool top, a clay spindle whorl, and a blue glass bead were found. Of particular interest were the reconstructable sherds of a coarse earthenware tostador similar to that found at Santo Domingo.

The testable area at Sorsano, for which no map is included, covered 110 meters north/south by 40 meters east/west. A total of 44 shovel tests was excavated, five of which were sterile. Artifacts recovered from the site numbered 190 and represented 12 artifact categories (Table 5.19). Coarse

Table 5.19: Artifact Frequencies from Shovel Tests at Sorsano

	Number	Percent
Tin-Enameled Pottery	5	2.6
Lead-Glazed Coarse Earthenware	6	3.1
Coarse Earthenware	99	52.1
Stoneware/Porcelain	2	1.0
Other European Pottery	25	13.1
Pre-Colonial Artifacts	1	0.5
Glass	28	14.8
Table Utensils	0	0
Wood Construction Materials	9	4.8
Adornment	5	2.6
Personal Artifacts	0	0
Activities	3	1.6
Industrial Artifacts	2	1.1
Unidentified Metal	5	2.7
Weaponry	0	0
Horse Hardware	0	0
Total	190	100

Earthenware made up the bulk of the assemblage (52.1%), followed by Glass (14.8), Other European Pottery (13.1%), Lead-Glazed Coarse Earthenware (3.1%), Tin-Enameled Pottery (2.6%), and Stoneware (1%). Kitchen-related artifacts accounted for 86.7% of the total. The remainder of the assemblage included Wood Construction Materials (4.8%), Unidentified Metal (2.7%), Adornment (2.6%), Activities (1.6%), Industrial Artifacts (1.1%), and Pre-Colonial Artifacts (0.5%).

Artifacts were fairly evenly distributed across the tested northern portion of Sorsano, primarily between 0-90 centimeters below surface. No volcanic ash was located. Tinaja and artifactual data suggest primarily eighteenth century occupation of the bodega, although additional work, especially in the untested area, could potentially uncover earlier deposits.

19) <u>Locumbilla</u>: Locumbilla lies one-half kilometer north of the Moquegua Ministry of Agriculture complex, at a distance of approximately 75 meters east of the road that runs from the Panamerican Highway into downtown Moquegua. Kilometer marker #2 can be found 300 meters north of the site. The complex is bordered by an irrigation canal along the west and south sides (Figure 5.16), with a stone wall to the north of the site that restricts access to an adjacent field and residence. Along the eastern edge of the site is a steep upslope.

Locumbilla is a relatively well preserved winery with three tinaja rooms, a series of intact lagares, and a number of standing structures. A stone paved patio is present in the southwestern part of the bodega, exterior to the residential rooms. One of the tinaja rooms, immediately north of this domestic area, retains its cane roof. Visible tinaja dates at Locumbilla range from 1790 to 1803. Surface material gathered from the site was limited to a

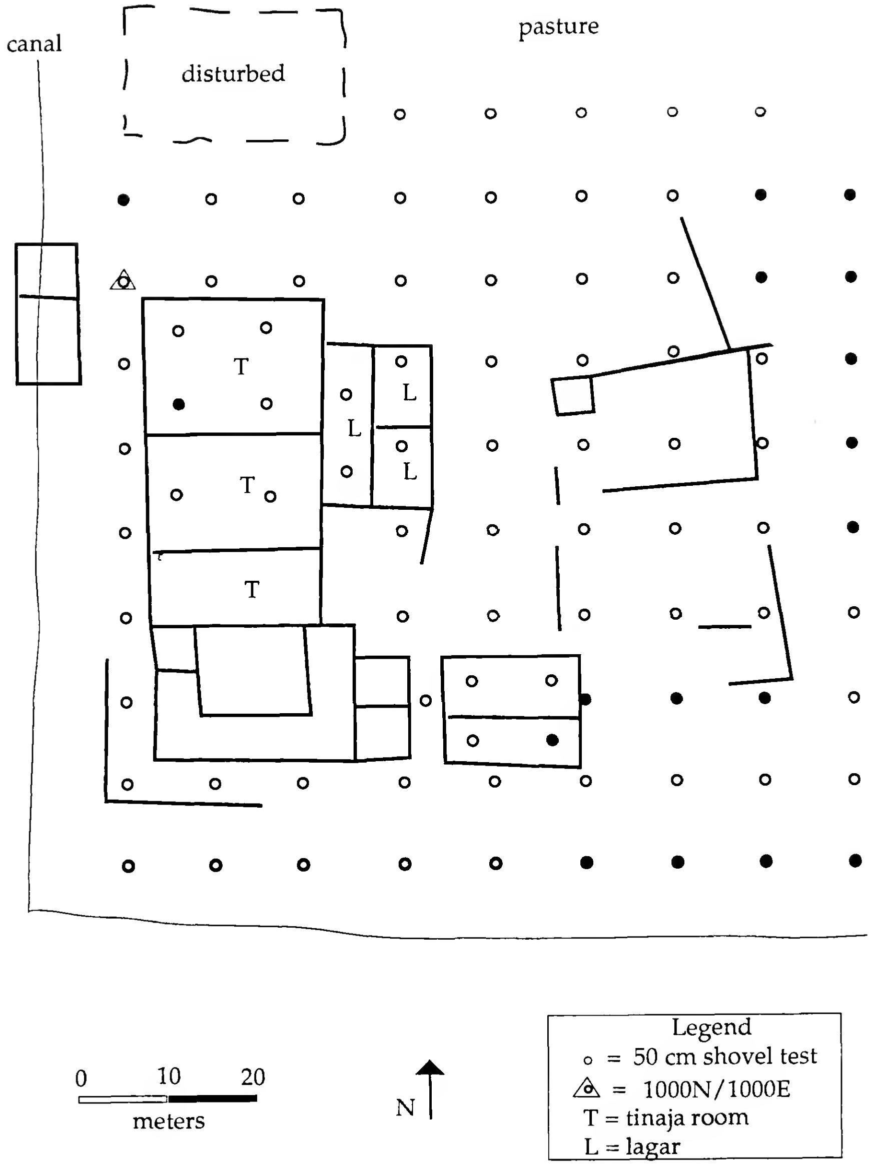

Figure 5.16: Plan View of Locumbilla Showing Test Locations
(blackened tests are sterile)

Table 5.20: Artifact Frequencies from Shovel Tests at Locumbilla

	Number	Percent
Tin-Enameled Pottery	11	2.7
Lead-Glazed Coarse Earthenware	13	3.2
Coarse Earthenware	253	62.8
Stoneware/Porcelain	1	0.3
Other European Pottery	34	8.4
Pre-Colonial Artifacts	2	0.5
Glass	61	15.1
Table Utensils	0	0
Wood Construction Materials	3	0.7
Adornment	15	3.7
Personal Artifacts	1	0.3
Activities	0	0
Industrial Artifacts	3	0.7
Unidentified Metal	6	1.5
Weaponry	0	0
Horse Hardware	0	0
Total	403	99.9

base from a Mechero Plain vessel (see Chapter 7 and Appendix D), a brick bearing the footprint of a small dog, and a rimsherd thought to represent a piece of kiln furniture used for supporting botijas in a kiln firing chamber.

Locumbilla is large and measures approximately 120 meters north/south by 100 meters east/west. A total of 92 tests was excavated, of which 17 were sterile. Shovel tests yielded the largest assemblage recovered from the bodegas, 403, and included elements from 12 categories (Table 5.20). Coarse Earthenwares were the most frequently represented (62.8%), followed by Glass (15.1%), Other European Pottery (8.4%), Lead-Glazed Coarse Earthenware (3.2%), Tin-Enameled Pottery (2.7%), and Stoneware (0.3%). These Kitchen artifacts accounted for 92.5% of the total assemblage. Additional artifacts from the site included articles of Adornment (3.7%), Unidentified Metal (1.5%), Construction and Industrial Artifacts (0.7% each), Pre-Colonial Pottery (0.5%), and one clay pipestem from the Personal Artifacts category (0.3%).

Testing at Locumbilla revealed a number of interesting artifact concentrations, with several deposits continuing below one meter below surface. In the southeastern sector, volcanic ash was encountered in a number of tests, leading us to attribute great potential for sixteenth century data recovery in that area. Also, tests in a large depression to the the north contained a great deal of scoriated material and botija fragments, which suggested the presence of an extensive industrial component. Both of these areas, as well as additional locations, were tested during excavations at Locumbilla, as discussed in Chapters 6 and 7.

20) La Banda: This small site is located 300 meters north of kilometer marker #2, on the eastern side of the Moquegua Highway. Located atop a high hill,

the site is approximately 50 meters east of the highway. Steep downslopes delimit the site boundaries on the west, north, and east sides, while a hillside rises up along the eastern edge of the site. Visible tinaja dates range from 1699 to 1790.

No surface material was recovered from La Banda, which serves as home to a number of human and nonhuman inhabitants, and no site map is included herein. As the site lies on a narrow, linear hilltop, testing was confined to a strip measuring a maximum of 90 meters north/south by 20 meters east/west. Within these confines, a total of 14 tests was excavated, of which two were sterile.

As seen in Table 5.21, artifacts from La Banda were few in number (N = 44), with Kitchen artifacts accounting for 90.8% of those recovered. Coarse earthenware comprised the bulk of the total assemblage (52.2%), followed by Other European (20.4), Tin-Enameled (4.5%), and Lead-Glazed Coarse Earthenware (2.3%). Five fragments of glass were recovered (11.4%), as was one fragment from each of the Construction, Adornment, Personal, and Unidentified Metal categories (2.3% each).

No artifact concentrations were noted at La Banda, primarily because its layout and small size allowed only for linear testing. Deposits were deeper here than at most bodegas, with much of the material coming from between 0-90 centimeters below surface. Although few artifacts were recovered, the site is highly recommended for further testing. Tinaja and artifact data reflect seventeenth through nineteenth century occupation, and given the proximity of the site to Locumbilla, the possibility exists that the two were contemporaneous. Located atop a steep hill, La Banda has been spared from extensive disturbance, and early deposits are probably capped safely by material generated by its present inhabitants.

Table 5.21: Artifact Frequencies from Shovel Tests at La Banda

	Number	Percent
Tin-Enameled Pottery	2	4.5
Lead-Glazed Coarse Earthenware	1	2.3
Coarse Earthenware	23	52.2
Stoneware/Porcelain	0	0
Other European Pottery	9	20.4
Pre-Colonial Artifacts	0	0
Glass	5	11.4
Table Utensils	0	0
Wood Construction Materials	1	2.3
Adornment	1	2.3
Personal Artifacts	1	2.3
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	1	2.3
Weaponry	0	0
Horse Hardware	0	0
Total	44	100

21) Yaravico Viejo: Yaravico Viejo is a badly destroyed bodega located on the western side of the Moquegua Highway, approximately one-quarter kilometer northeast of La Banda bodega. The site, or what remains of it, is on the northern side of a public school complex directly west of the highway. Agricultural land lies along the narrow, northern end of the bodega, while a hill rises up along the site's eastern side. The entire western side of the site has been demolished since the time of 1987 shovel testing by road widening and the construction of a new concrete canal. Similarly, as noted during a 1990 visit, the southern portion of the site has been bulldozed and additional school buildings have been constructed. This lack of preservation effort is terribly unfortunate, since the site seems to date to the sixteenth century. The oldest known in-situ tinaja in the valley, bearing a date of 1590, was removed from the site for safekeeping following the 1990 revisitation.

When tested, Yaravico Viejo measured a maximum of 100 meters north/south by 60 meters east/west. Figure 5.17 depicts the site as it was in 1987; as noted above, site size has been reduced greatly since that time. No surface material was recovered from this area, where a total of 26 shovel tests was excavated. Three of the tests were sterile.

Artifacts recovered from the shovel tests numbered 79 and represented 9 artifact categories (Table 5.22). Coarse Earthenware was the most frequent (55.7%), followed by Other European Pottery (19%), Glass (13.9%), Lead-Glazed Coarse Earthenware (2.5%), and Tin-Enameled Pottery (1.3%). Kitchen-related artifacts made up 92.4% of the total site assemblage. The remainder was comprised of Wood Construction Materials and Horse Hardware (2.5% each), in addition to Industrial and Pre-Colonial Artifacts, each accounting for 1.3%.

No artifact concentrations were noted during testing at Yaravico Viejo, with recovered material coming primarily from between 0-80 centimeters

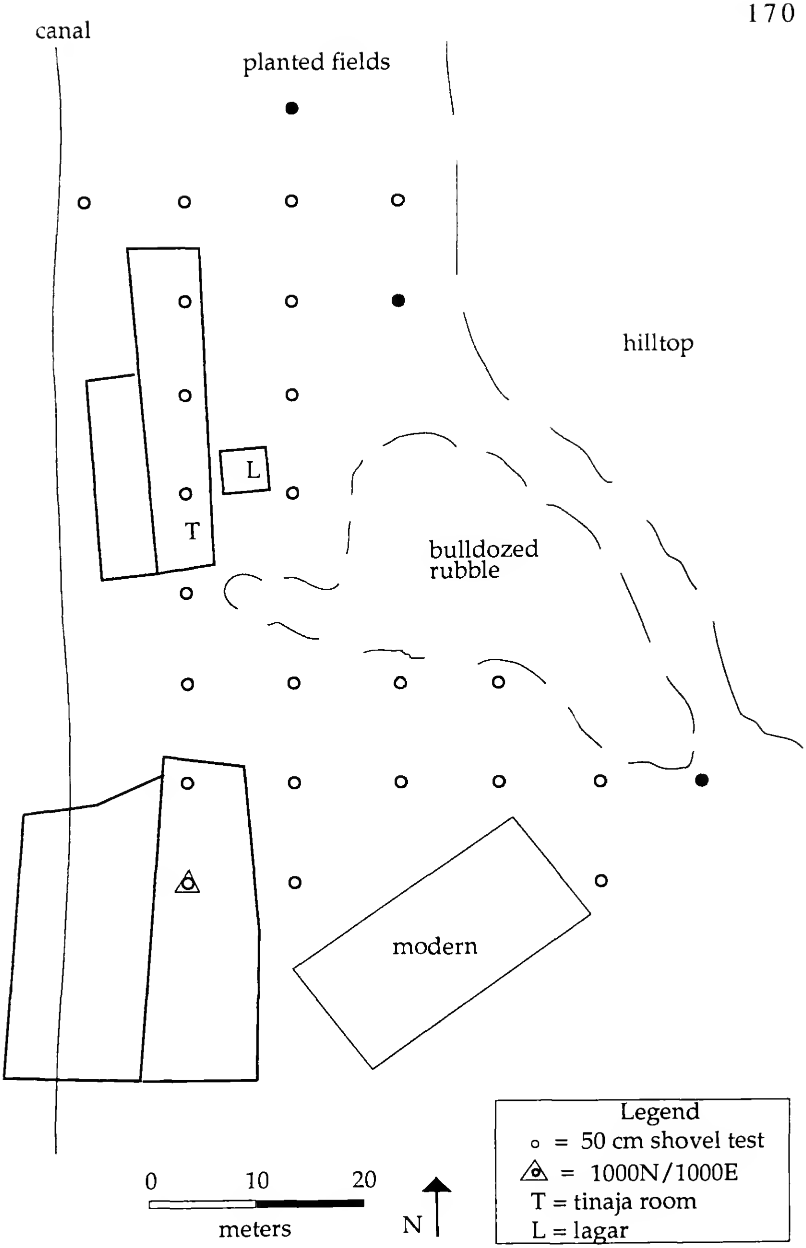

Figure 5.17: Plan View of Yaravico Viejo Showing Test Locations (blackened tests are sterile)

Table 5.22: Artifact Frequencies from Shovel Tests at Yaravico Viejo

	Number	Percent
Tin-Enameled Pottery	1	1.3
Lead-Glazed Coarse Earthenware	2	2.5
Coarse Earthenware	44	55.7
Stoneware/Porcelain	0	0
Other European Pottery	15	19.0
Pre-Colonial Artifacts	1	1.3
Glass	11	13.9
Table Utensils	0	0
Wood Construction Materials	2	2.5
Adornment	0	0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	1	1.3
Unidentified Metal	0	0
Weaponry	0	0
Horse Hardware	2	2.5
Total	79	100

below surface. While visiting the site in 1990, however, we noticed a deposit that appears to represent a kiln at the edge of the bulldozed area within the hillside at the site's southeastern extreme. This area should receive additional archaeological attention, as should any or all remaining undisturbed locations at Yaravico Viejo. Continued destruction appears to be unavoidable, however, as year by year the site is diminished in size during efforts to enlarge the nearby school. Given the sixteenth century tinaja that was recovered, and documentary references to Yaravico as one of Moquegua's earliest wine-producing districts, additional data should be recovered from this site before all traces of it are obliterated.

22) Chimba Alta 2: Chimba Alta 2 is located in the northern part of the valley on the western side of the river. Tinaja dates observed at the bodega are generally from the 1790s, although one date of 1695 was also noted. The site has been greatly disturbed by construction, especially in the northeastern sector, where building construction and the placement of a canal have occurred. Agricultural fields are located along the western and northern ends of the site, and a hillside slopes upward along the eastern edge (Figure 5.18). A canal also runs north/south between standing structures at the site.

In surface collecting the site only four artifacts were recovered, including three Andean-made tin-enameled sherds and a horseshoe fragment. The testable portion of the site area measured a maximum of 80 meters north/south by 50 meters east/west. A total of 16 tests was excavated, of which three were sterile.

Artifacts recovered from Chimba Alta 2 testing numbered 78 and reflected eight artifact categories (Table 5.23). The majority of these (94%) were Kitchen artifacts, including Coarse Earthenware (60.2%), Glass (19.2%),

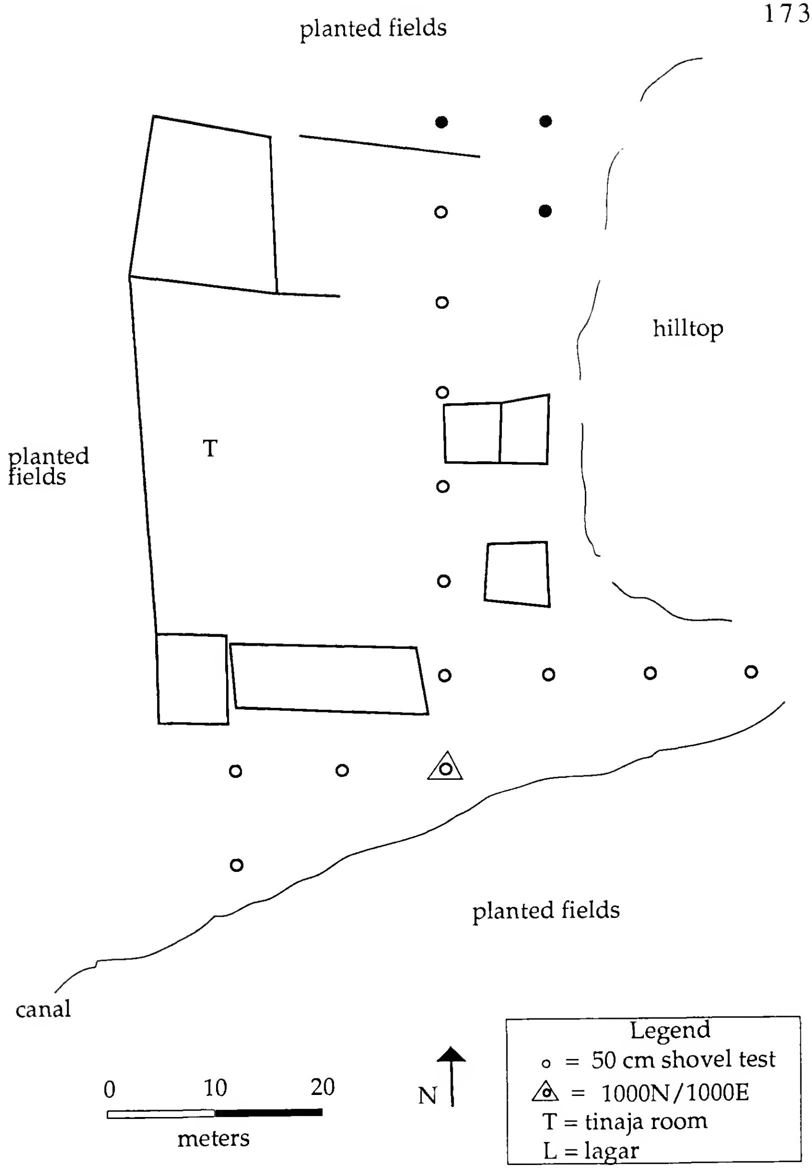

Figure 5.18: Plan View of Chimba Alta 2 Showing Test Locations (blackened tests are sterile)

Table 5.23: Artifact Frequencies from Shovel Tests at Chimba Alta 2

	Number	Percent
Tin-Enameled Pottery	2	2.6
Lead-Glazed Coarse Earthenware	2	2.6
Coarse Earthenware	47	60.2
Stoneware/Porcelain	0	0
Other European Pottery	7	8.9
Pre-Colonial Artifacts	0	0
Glass	15	19.2
Table Utensils	0	0
Wood Construction Materials	2	2.6
Adornment	1	1.3
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	2	2.6
Weaponry	0	0
Horse Hardware	0	0
Total	78	100

Other European Pottery (8.9%), and Tin-Enameled and Lead-Glazed wares (both 2.6%). Additional artifacts included Wood Construction Materials (2.6%), 2 pieces of Unidentified Metal (2.6%), and one textile fragment from the Adornment category (1.3%).

Concentrations of artifacts were not located during testing at Chimba Alta 2, where deposits ranged primarily from 0-85 centimeters below surface. Volcanic ash was not encountered in any tests. Data from tinajas and artifacts reflect seventeenth through nineteenth century occupation. Further work at Chimba Alta 2 is recommended in order to provide additional data on the seventeenth century occupation of the northern valley.

23) Sameguita: This site is located in the northeastern part of the valley along the Calle Internacional that links Moquegua to Cuajone. Appearing triangular in layout, the remains of the winery are encroached upon on three sides by modern construction. A canal runs along the north and west sides of the site, with an automotive garage located directly adjacent to the bodega to the southeast. The highway is slightly higher in elevation than the winery, and runs roughly southwest to northeast past the site. Situated in such an urban setting, the site is characterized by a great deal of disturbance due to earth and tinaja removal. One of the remaining vessels bears a date of 1709.

A variety of surface material was recovered at Sameguita, due partly to vast exposures caused by both tinaja and, according to the owner, burial removal. Pearlware, Ironstone, Whiteware, and Andean-made pottery were collected, in addition to amethyst, clear, and green glass. A wooden handle, two pieces of brass, and part of an iron hinge were also recovered.

Testing of the site was severely constrained by disturbances, and no site map is included herein. A total of 21 shovel tests was excavated, 9 of which

Table 5.24: Artifact Frequencies from Shovel Tests at Sameguita

	Number	Percent
Tin-Enameled Pottery	18	12.5
Lead-Glazed Coarse Earthenware	3	2.1
Coarse Earthenware	76	52.8
Stoneware/Porcelain	0	0
Other European Pottery	15	10.4
Pre-Colonial Artifacts	0	0
Glass	27	18.7
Table Utensils	0	0
Wood Construction Materials	2	1.4
Adornment	0	0
Personal Artifacts	0	0
Activities	1	0.7
Industrial Artifacts	0	0
Unidentified Metal	1	0.7
Weaponry	0	0
Horse Hardware	1	0.7
Total	144	100

were sterile. Artifacts recovered numbered 144 and represented 9 artifact categories (Table 5.24). Coarse Earthenware comprised more than half the assemblage (52.8%), followed by Glass (18.7%), Tin-Enameled Pottery (12.5%), Other European Pottery (10.4%), and Lead-Glazed Coarse Earthenware (2.1%). Kitchen artifacts accounted for 96.5% of the total artifact count. Sameguita has the distinction of having the largest percentage of Tin-Enameled Pottery from the tested sites. Additional artifacts from the site include Wood Construction (1.4%), Unidentified Metal (0.7%), and the Activities group (0.7%).

No significant concentrations of artifacts were recovered from Sameguita, where cultural deposits were located primarily between 0-70 centimeters below surface. In the absence of volcanic ash, the data were found to reflect early eighteenth through nineteenth century occupation. Disturbance at the site is great, however, which constrained testing and has limited the integrity and potential of the site to yield additional results. Further work at Sameguita is not highly recommended.

24) Pataleta: The site of Pataleta is located in the northwestern part of the valley, bordered to the south by the river bed. Agricultural fields surround the site on three sides, with a number of cows populating the northern sector. Rocks have been gathered, presumably during field clearing, and used to form a border and walkway system around the entire area, which now serves as a residence.

Surface material collected from Pataleta included transfer-printed Pearlware, a fragment of blue and white Porcelain, and an iron plate lock. Testable portions of the site measured a maximum of 60 meters north/south by 80 meters east/west (Figure 5.19). Within this expanse 24 tests were excavated, of which ten were sterile.

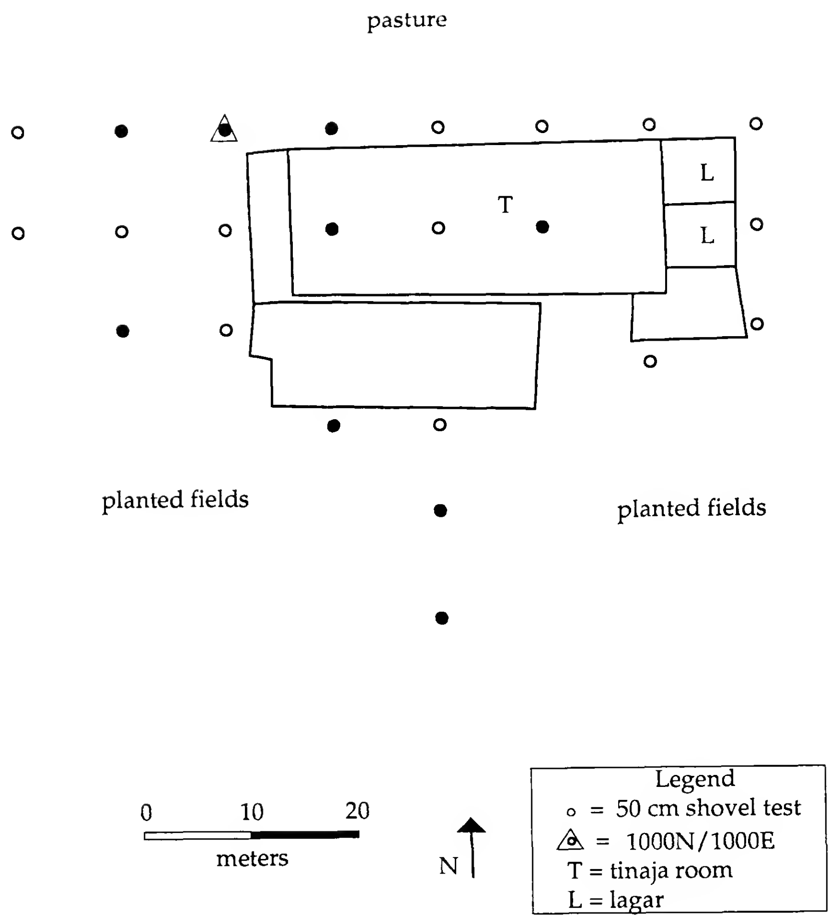

Figure 5.19: Plan View of Pataleta Showing Test Locations (blackened tests are sterile)

Table 5.25: Artifact Frequencies from Shovel Tests at Pataleta

	Number	Percent
Tin-Enameled Pottery	1	1.6
Lead-Glazed Coarse Earthenware	0	0
Coarse Earthenware	23	36.5
Stoneware/Porcelain	0	0
Other European Pottery	13	20.6
Pre-Colonial Artifacts	0	0
Glass	13	20.6
Table Utensils	0	0
Wood Construction Materials	0	0
Adornment	1	1.6
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	1	17.5
Weaponry	0	0
Horse Hardware	1	1.6
Total	63	100

Artifacts recovered from testing numbered 63 and represented 7 categories (Table 5.25). Kitchen Group artifacts made up 79.3% of the site total. Coarse Earthenware (36.5%) was the most frequently occurring in the total assemblage, followed by Other European Pottery (20.6%), Glass (20.6%), and Tin-Enameled Pottery (1.6%). Unidentified Metal made up 17.5% of the total, while Adornment (one brass button) accounted for 1.6%.

Concentrations of artifacts were not noted at Pataleta, where deposits were primarily located at 0-70 centimeters below surface. Almost half the tests were sterile, and no traces of volcanic ash were encountered. Based on the data, eighteenth and nineteenth century occupation is suggested, although seventeenth century deposits could possibly be located in future work. Additional excavation at the site is not strongly recommended, however.

25) <u>Huaracane</u>: This bodega is in the extreme northwestern part of the valley, situated slightly less than one kilometer north of Pataleta. An irrigation canal and downslope border the eastern side of the site, while a steep uphill slope lies to the west and south (Figure 5.20). An access road runs along the northern edge of the complex. Tinajas at the site bear dates ranging from 1774 to 1782.

Surface material from Huaracane included Annular Ware, Whiteware, and Andean-made plain and decorated pottery. With regard to testing, a total of 19 shovel tests was excavated within a maximum area measuring 100 meters north/south by 40 meters east/west. Two of the excavated tests were sterile.

Artifacts recovered from testing at Huaracane numbered 238 and represented 11 artifact categories (Table 5.26). Coarse Earthenwares accounted

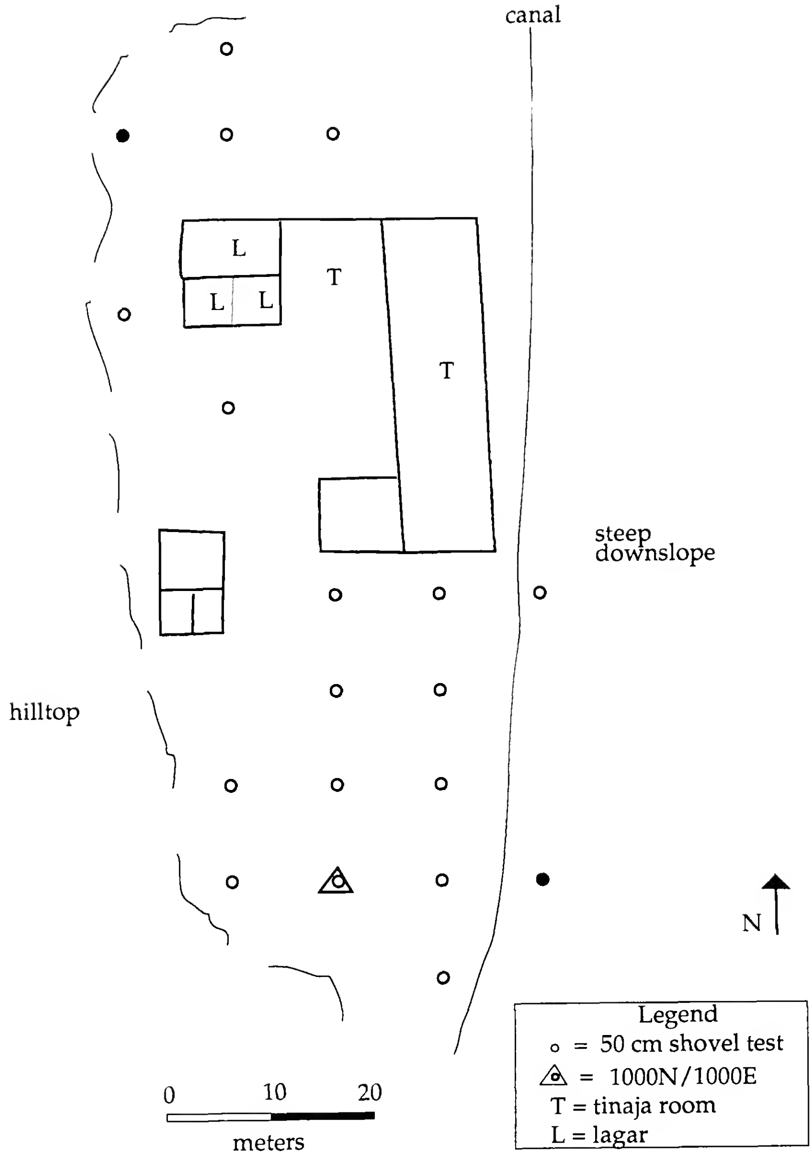

Figure 5.20: Plan View of Huaracane Showing Test Locations
(blackened tests are sterile)

Table 5.26: Artifact Frequencies from Shovel Tests at Huaracane

	Number	Percent
Tin-Enameled Pottery	6	2.5
Lead-Glazed Coarse Earthenware	8	3.4
Coarse Earthenware	92	38.7
Stoneware/Porcelain	0	0
Other European Pottery	46	19.3
Pre-Colonial Artifacts	0	0
Glass	67	28.2
Table Utensils	2	0.8
Wood Construction Materials	5	2.1
Adornment	4	1.7
Personal Artifacts	1	0.4
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	6	2.5
Weaponry	0	0
Horse Hardware	1	0.4
Total	238	100

for 38.7% of the assemblage, followed by Glass (28.2%), Other European Pottery (19.3%), Lead-Glazed Coarse Earthenware (3.4%), Tin-Enameled Pottery (2.5%), and Table Utensils (0.8%). Kitchen artifacts made up 92.9% of the site total. Also included in the assemblage was the greatest percentage of Unidentified Metal recovered from the tested sites (17.5%), and one textile fragment representing the Adornment group (1.3%).

Artifacts were evenly distributed across the site, and no significant concentrations were noted. Cultural deposits were primarily located between 0-90 centimeters below surface, and no volcanic ash was detected in any tests. Data from the site reflect eighteenth and nineteenth century deposits, although further work could possibly isolate earlier remains. Given the fairly high degree of preservation at Huaracane, additional excavation is warranted in order to gather data from the north valley.

26) Totoral: Totoral was the smallest bodega ruin tested. The site is located in the northeastern part of the valley, approximately 1.5 kilometers northeast of Sameguita. Totoral is situated in the middle of a cornfield, where adobe-making activities are conducted in what remains of a tinaja room; one tinaja date of 1734 was noted. Aerial photos of the area taken during the 1950s show a number of structural remnants still standing, but in 1987 only new property-delineating walls and a few remnant adobes were present. Due to the extremely fragmentary nature of the site, a map is not included herein.

No surface material was recovered from the site, and only limited subsurface testing was possible. Five tests were excavated, of which one was sterile. Only 11 artifacts were recovered at Totoral. As seen in Table 5.27, these were all pottery, 18.2% of which were Coarse Earthenware and 81.8% Other European Pottery.

Table 5.27: Artifact Frequencies from Shovel Tests at Totoral

	Number	Percent
Tin-Enameled Pottery	0	0
Lead-Glazed Coarse Earthenware	0	0
Coarse Earthenware	2	18.2
Stoneware/Porcelain	0	0
Other European Pottery	9	81.8
Pre-Colonial Artifacts	0	0
Glass	0	0
Table Utensils	0	0
Wood Construction Materials	0	0
Adornment	0	0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	0	0
Weaponry	0	0
Horse Hardware	0	0
Total	11	100

Due to heavy disturbance of the site and the unidimensional nature of the assemblage, little can be inferred from the testing of Totoral. No volcanic ash was encountered, and data suggest the site was occupied during the eighteenth and nineteenth centuries. Further testing at the site is not recommended.

27) Yahuay: This site is located in the northwestern part of the valley, approximately one kilometer northeast of Huaracane. Yahuay is thought to have been occupied by the Jesuits, and appears to be in an excellent state of preservation. The southern edge of the site drops off sharply to agricultural land, while a canal separates site structures from a flat expanse of agricultural and grazing land to the north and east (Figure 5.21). West of the site lie a series of occupied domestic structures, where permission to test was not secured. From within the tinaja room at the east side of the complex a date of 1744 was noted on one vessel.

Artifacts recovered from surface collection of Yahuay included Pearlware, Ironstone, Stoneware, and Andean-made pottery. One piece of amethyst glass and a broken iron hinge were also recovered. Subsurface testing at Yahuay covered an area measuring a maximum of 40 meters north/south by 100 meters east/west. Within this area a total of 38 tests was excavated, of which 13 were sterile.

Recovered artifacts numbered 109 and represented 9 artifact categories (Table 5.28). Coarse Earthenwares accounted for the bulk of the assemblage (67.9%), followed by Glass (12.8%), Other European Pottery (6.4%), Tin-Enameled Pottery (5.5%), and Lead-Glazed Coarse Earthenware (2.8%). Kitchen artifacts accounted for 95.4% of the total. Additional artifacts

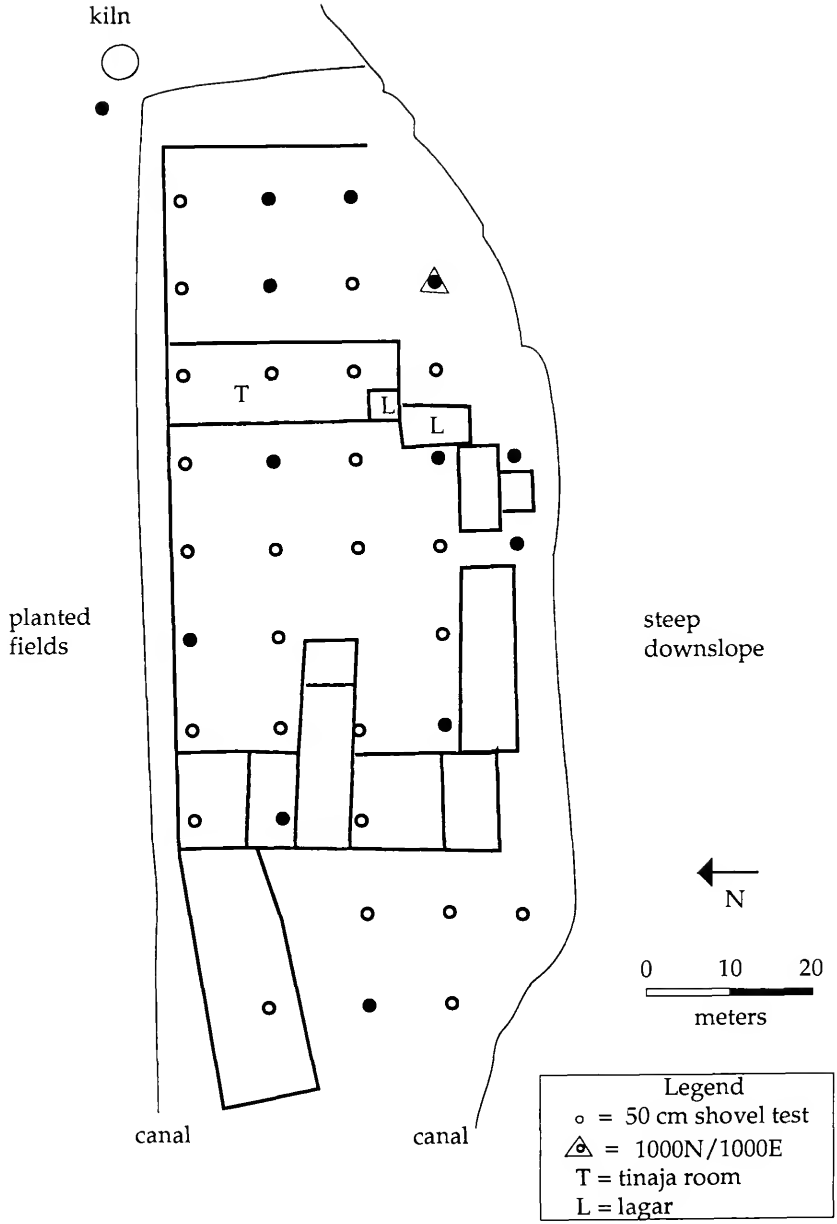

Figure 5.21: Plan View of Yahuay Showing Test Locations
(blackened tests are sterile)

Table 5.28: Artifact Frequencies from Shovel Tests at Yahuay

	Number	Percent
Tin-Enameled Pottery	6	5.5
Lead-Glazed Coarse Earthenware	3	2.8
Coarse Earthenware	74	67.9
Stoneware/Porcelain	0	0
Other European Pottery	7	6.4
Pre-Colonial Artifacts	2	1.8
Glass	14	12.8
Table Utensils	0	0
Wood Construction Materials	1	0.9
Adornment	0	0
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	1	0.9
Unidentified Metal	1	0.9
Weaponry	0	0
Horse Hardware	0	0
Total	109	99.9

included Pre-Colonial (1.8%), Wood Construction and Industrial Materials (0.9% each), and Unidentified Metal (0.9%).

Testing at Yahuay reflects a fairly even distribution of material across the site, primarily between 0-80 centimeters below surface. No volcanic ash was encountered in any of the tests. Data reflect largely eighteenth century occupation, as seen in the high proportion of Coarse Earthenware in comparison with Other European Pottery. In light of the site's seemingly well-preserved condition, Yahuay was one of the sites excavated, as discussed in Chapters 6 and 7.

28) Estopacaje: This site was tested in 1989 after receiving documentary information regarding a bodega in the vicinity that bore the name Estopacaje (Lopez and Huertas 1989). Located approximately three-quarters of a kilometer north of Yaravico Viejo, the site is owned by three different families, all of whom gave their permission for testing. Due to the fact that much of the site area was comprised of habitation areas, however, our ability to excavate was limited.

The west end of the site is bordered by a concrete irrigation canal, which runs north/south between site structures and adjacent potato fields (Figure 5.22). Agricultural fields also lie north and east of the site, although a line of tests was placed within the limited spaces available. The river bed, dry at the time of our visit, runs along the southern edge of the site at a distance of less than 10 meters from a house of recent construction.

The testable portion of Estopacaje measured a maximum of 60 meters north/south by 30 meters east/west. Since this site was expected to contain sixteenth century remains, and given the small testable area, tests were placed

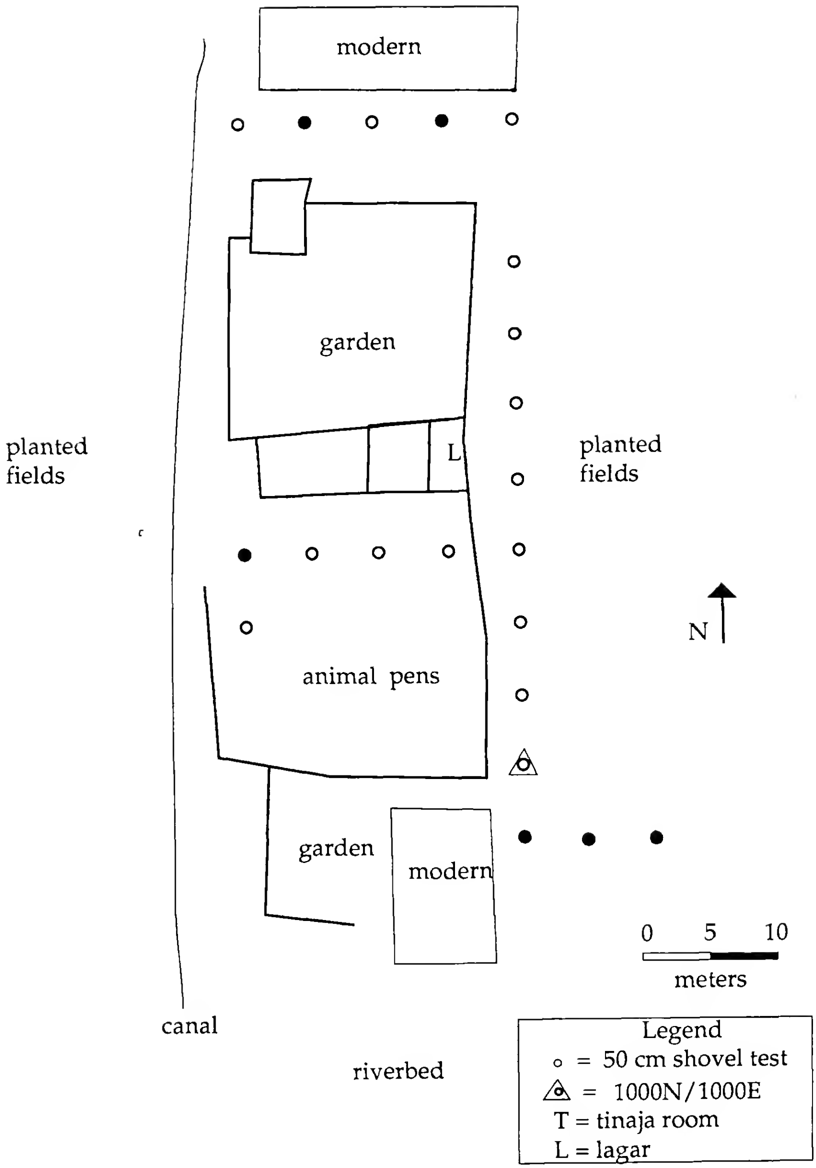

Figure 5.22: Plan View of Estopacaje Showing Test Locations
(blackened tests are sterile)

Table 5.29: Artifact Frequencies from Shovel Tests at Estopacaje

	Number	Percent
Tin-Enameled Pottery	9	2.5
Lead-Glazed Coarse Earthenware	10	2.7
Coarse Earthenware	186	50.9
Stoneware/Porcelain	0	0
Other European Pottery	56	15.3
Pre-Colonial Artifacts	1	0.3
Glass	74	20.3
Table Utensils	0	0
Wood Construction Materials	5	1.4
Adornment	1	0.3
Personal Artifacts	0	0
Activities	0	0
Industrial Artifacts	0	0
Unidentified Metal	22	6.0
Weaponry	0	0
Horse Hardware	1	0.3
Total	365	100

at five instead of ten meter intervals. A total of 21 shovel tests was excavated, six of which were sterile.

Artifacts recovered numbered 365 and represented 10 artifact categories (Table 5.29). Coarse Earthenwares accounted for slightly more than half the assemblage (50.9%), followed by Glass (20.3%), Other European Pottery (15.3%), Lead-Glazed Coarse Earthenware (2.7%), and Tin-Enameled Pottery (2.5%). Kitchen artifacts made up 91.7% of the total. Additional artifacts included Unidentified Metal (6%), Wood Construction Materials (1.4%), Adornment (0.3%), and Pre-Colonial (0.3%).

No significant concentrations and no volcanic ash were encountered at Estopacaje. Given documentary reference to a site bearing the same name (Lopez and Huertas 1989), however, excavations were conducted in order to investigate the site further and test the interpretations we had derived from shovel tests. These data suggested primarily eighteenth and nineteenth century occupation, with the possibility of earlier components. Discussion of excavations and results at Estopacaje are included in Chapters 6 and 7, respectively.

Synthesis of Shovel Testing Results

The shovel testing of 28 wineries has provided a first look at the material culture associated with the Colonial development of Moquegua. In all, 4439 artifacts were recovered representing 16 data categories that could be quantified and compared. Having discussed the assemblage from each site individually, we can now look at the nature and range of the combined assemblage from the tested sites in order to identify patterns that may characterize the valley assemblage as a whole. Analysis of material from

temporally controlled excavations, discussed in Chapters 6 and 7, will allow for an examination of patterned change through time.

Table 5.30 presents the frequency and percentage of artifacts from each category by site. Kitchen artifacts accounted for the largest percentage of each site assemblage. Clearly, Coarse Earthenwares constituted a majority of the artifacts in the assemblages of every site, followed by Glass and Other European Pottery, which were each present at all but one of the bodegas. By contrast, a number of data categories were represented at fewer than half the sites, including Stoneware/Porcelain, Table Utensils, Personal Items, Activities, Weaponry, and Horse Hardware. Pre-Colonial artifacts were also located at less than half of the tested sites.

In order to summarize shovel test data and provide a general model of Colonial material culture at the wineries, Table 5.31 is compiled from the results from 23 of the bodegas. Due to the small size of the assemblages from five of the sites (where N < or = 50), Totoral, La Banda, Condesa, Corpanto Viejo, and Conde 2 were excluded from further analysis.

Of the 16 data categories, only three consistently average more than 10% of each site assemblage. These include artifacts from the Coarse Earthenware, Glass, and Other European Pottery classifications, all of which are in the Kitchen Group of artifacts. Clearly, a number of categories are notable for the low frequencies they represent. Stoneware/Porcelain, Table Utensils, Personal items, Activity-related artifacts, Horse Hardware, and Weaponry categories reflect an average of less than one percent of the site assemblages.

Given the known predominance of Kitchen group artifacts, especially pottery, within the assemblages of Spanish Colonial sites (Deagan 1985; McEwan 1983, 1988; Ewen 1987), and in order to draw some preliminary

TABLE 5.30: COMPARISON OF ARTIFACT FREQUENCIES AND PERCENTAGES BY SITE

SITE	TE	LG	CE	SW,POR	EURO	PRE-COL	GLASS	TABLE	CONST	ADOR	PERS	ACTIV	IND	METAL	WEAP	HORSE	Total #
Molle	4/1.4	2/0.7	87/29.8	1/0.3	51/17.4	0	80/27.4	1/0.3	10/3.4	6/2.0	0	1/0.3	1/0.3	46/15.7	2/0.7	0	292
Espejos	9/3.6	6/2.4	92/37.3	0	42/17.0	2/0.8	56/22.7	4/1.6	8/3.2	20/8.1	0	3/1.2	0	5/2.0	0	0	247
Taquila	2/2.6	2/2.6	13/16.7	0	11/14.1	0	31/39.7	0	9/11.5	1/1.3	0	0	5/6.4	3/3.8	1/1.3	0	78
Chincha	5/1.9	5/1.9	90/34.7	1/0.4	54/20.8	0	56/21.6	0	7/2.7	11/4.3	0	1/0.4	12/4.6	16/6.2	0	1/0.4	259
Conde 2	3/6.0	0	36/72.0	0	1/2.0	0	8/16.0	0	1/2.0	0	0	0	0	1/2.0	0	0	50
Sacatilla	26/6.7	6/1.5	180/46.5	0	53/13.7	3/0.8	56/14.4	0	19/4.9	17/4.4	0	1/0.3	7/1.8	17/4.4	1/0.3	1/0.3	387
Sacatita	5/4.9	3/2.9	42/41.2	1/0.9	6/5.9	0	25/24.5	0	5/4.9	5/4.9	2/2.0	0	1/0.9	5/4.9	0	2/2.0	102
Chamos	13/5.1	4/1.6	95/37.4	0	54/21.3	1/0.4	70/27.5	0	4/1.6	8/3.1	0	0	1/0.4	4/1.6	0	0	254
Soledad	2/1.0	1/0.5	149/73.8	0	12/5.9	14/6.9	20/9.9	0	0	1/0.5	0	1/0.5	1/0.5	1/0.5	0	0	202
Navarr.	4/4.5	3/3.4	46/52.3	0	13/14.8	0	15/17.1	0	3/3.4	1/1.1	0	0	0	3/3.4	0	0	88
Sto. Dom.	6/5.9	1/1.0	56/55.4	0	5/4.9	1/1.0	21/20.8	0	1/1.0	3/3.0	1/1.0	1/1.0	1/1.0	4/4.0	0	0	101
C. Viejo	0	0	7/58.3	0	0	0	2/16.7	0	0	3/25.0	0	0	0	0	0	0	12
C. Ghersi	6/2.0	17/5.6	135/44.5	0	28/9.2	1/0.3	79/26.1	2/0.7	11/3.6	9/3.0	0	0	2/0.7	13/4.3	0	0	303
O.C. Verde	2/2.1	6/6.3	23/24.0	0	30/31.2	1/1.0	19/19.8	0	5/5.2	4/4.2	1/1.0	0	0	4/4.2	0	1/1.0	96
O. Z. Bajo	5/4.2	8/6.6	59/49.2	0	15/12.5	2/1.7	15/12.5	0	1/0.8	6/5.0	0	0	0	8/6.6	0	1/0.8	120
Calaluna	3/3.3	0	44/49.0	0	11/12.2	0	13/14.4	0	1/1.1	2/2.2	0	1/1.1	3/3.3	11/12.2	0	1/1.1	90
Condesa	0	1/2.9	16/47.1	0	1/2.9	0	9/26.5	0	2/5.9	0	0	0	0	5/14.7	0	0	34
Sorsano	5/2.6	6/3.1	99/52.1	2/1.0	25/13.1	1/0.5	28/14.8	0	9/4.8	5/2.6	0	3/1.6	2/1.1	5/2.7	0	0	190
Locum.	11/2.7	13/3.2	253/62.8	1/0.3	34/8.4	2/0.5	61/15.1	0	3/0.7	15/3.7	1/0.3	0	3/0.7	6/1.5	0	0	403
La Banda	2/4.5	1/2.3	23/52.2	0	9/20.4	0	5/11.4	0	1/2.3	1/2.3	1/2.3	0	0	1/2.3	0	0	44
Y. Viejo	1/1.3	2/2.5	44/55.7	0	15/19.0	1/1.3	11/13.9	0	2/2.5	0	0	0	1/1.3	0	0	2/2.5	79
C. Alta 2	2/2.6	2/2.6	47/60.2	0	7/8.9	0	15/19.2	0	2/2.6	1/1.3	0	0	0	2/2.6	0	0	78
Sameg.	18/12.5	3/2.1	76/52.8	0	15/10.4	0	27/18.7	0	2/1.4	0	0	1/0.7	0	1/0.7	0	1/0.7	144
Pataleta	1/1.6	0	23/36.5	0	13/20.6	0	13/20.6	0	0	1/1.6	0	0	0	11/17.5	0	1/1.6	63
Huara.	6/2.5	8/3.4	92/38.7	0	46/19.3	0	67/28.2	2/0.8	5/2.1	4/1.7	1/0.4	0	0	6/2.5	0	1/0.4	238
Totoral	0	0	2/18.2	0	9/81.8	0	0	0	0	0	0	0	0	0	0	0	11
Yahuay	6/5.5	3/2.8	74/67.9	0	7/6.4	2/1.8	14/12.8	0	1/0.9	0	0	0	1/0.9	1/0.9	0	0	109
Estopacaje	9/2.5	10/2.7	186/50.9	0	56/15.3	1/0.3	74/20.3	0	5/1.4	1/0.3	0	0	0	22/6.0	0	1/0.3	365
																	4439

TABLE 5.31: Range, Mean, and Mode Distributions for Artifact Categories

ARTIFACT	RANGE %	MEAN %	MODE %
Tin-Enameled Pottery	1.0 -12.5	3.6	2.6
Lead-Glazed	0.5 - 6.6	2.6	2.6
Coarse Earthenware	16.7 - 73.8	46.5	49.0
Stoneware/Porcelain	0.3 - 1.0	0.1	0.4
Other European Pottery	4.9 - 31.2	14.0	13.7
Glass	9.9 - 39.7	20.0	19.8
Table Utensils	0.3 - 1.6	0.1	0.7
Wood Construction	0.7 - 11.5	2.8	2.6
Adornment	0.3 - 8.1	2.2	2.8
Personal	0.3 - 2.0	0.2	1.0
Activities	0.3 - 1.6	0.3	0.8
Industrial Items	0.3 - 6.4	1.0	0.9
Unidentified Metal	0.5 - 17.5	4.7	3.9
Weaponry	0.3 - 1.3	0.1	0.7
Horse Hardware	0.3 - 2.5	0.5	0.8

impression from the shovel testing, Table 5.32 presents a breakdown of pottery categories at each site where the number of sherds was greater than 50. Eight sites had fewer sherds than 50, and in order to obtain a more representative sample from which to generalize, they were removed from further analysis.

As seen in Table 5.32, Coarse Earthenwares accounted for a mean 70.8% of the pottery recovered. Other European Pottery represented 20% of the valley assemblage, followed by Tin-Enameled Pottery (5.3%), Lead-Glazed Coarse Earthenware (3.7%), and Stoneware/Porcelain (0.2%). A better description of these wares and an understanding of how they were used through time is addressed in the following chapters.

Few specific statements can be made in determining the years of occupation represented by the shovel test assemblages. All sites revealed late eighteenth and nineteenth century occupation, as seen in artifacts that were manufactured in and imported from Europe. Additionally, tinaja dates at the majority of the sites suggest that occupation intensity was greatest during the eighteenth century. Late-dating diagnostic artifacts include primarily Other European Pottery, as well as fragments of Glass, printed matchboxes, and other manufactured items that were not made in Peru until the late nineteenth and early twentieth century (Rippy 1946).

It was not possible to isolate Middle Period occupations due to the fact that tests were not excavated in stratigraphic levels. The problem in identifying Middle Period contexts lies in the fact that the isolation of such contexts depends on either an absence of known eighteenth century artifacts or stratigraphic reference to volcanic ash from Huaynaputina. While it is expected that many of the sites that contain eighteenth century components were also occupied to some extent during the seventeenth century, shovel

Table 5.32: Distribution of Pottery at Sites Where N>50

SITE	TE		LG		CE		SW/POR		EURO	
	#	%	#	%	#	%	#	%	#	%
Molle	4	2.7	2	1.4	87	60.0	1	0.7	51	35.2
Espejos	9	6.0	6	4.0	92	61.7	0	0	42	28.2
Chincha	5	3.2	5	3.2	90	58.1	1	0.7	54	34.8
Sacatilla	26	9.8	6	2.3	180	67.9	0	0	53	20.0
Sacatita	5	8.8	3	5.3	42	73.7	1	1.7	6	10.5
Chamos 1	13	7.8	4	2.4	95	57.2	0	0	54	32.5
Soledad	2	1.2	1	0.6	149	90.9	0	0	12	7.3
Navarretes	4	6.1	3	4.5	46	69.7	0	0	13	19.7
Santo Domingo	6	8.8	1	1.5	56	82.3	0	0	5	7.4
Corp. Ghersi	6	3.3	17	9.1	135	72.6	0	0	28	15.0
Omo Z. Bajo	5	5.8	8	9.2	59	67.8	0	0	15	17.2
Calaluna	3	5.2	0	0	44	75.9	0	0	11	18.9
Sorsano	5	3.6	6	4.4	99	72.2	2	1.5	25	18.3
Locumbilla	11	3.5	13	4.2	253	81.1	1	0.3	34	10.9
Yaravico V.	1	1.6	2	3.2	44	70.9	0	0	15	24.2
C. Alta 2	2	3.5	2	3.5	47	81.0	0	0	7	12.0
Sameguita	18	16.0	3	2.7	76	67.9	0	0	15	13.4
Huaracane	6	3.9	8	5.3	92	60.5	0	0	46	30.3
Yahuay	6	6.7	3	3.3	74	82.2	0	0	7	7.8
Estopacaje	9	3.4	10	3.8	186	71.3	0	0	56	21.5
TOTAL #	146		103		1946		6		549	
PERCENT	5.3%		3.7%		70.8%		0.2%		20.0%	

test data do not permit confident interpretation of Middle Period habitation at this time. At two sites, La Banda and Chimba Alta 2, visible tinaja dates (1699 and 1695, respectively) suggest that each site was occupied during the seventeenth century. Tinaja dates do not preclude the possibility that even earlier occupation occurred, since tinajas often broke and were replaced as needed, but they do serve as useful temporal markers.

Early Period occupation was suggested at four of the sites, three by virtue of volcanic ash strata, and one by association with the date of an in-situ tinaja. Yaravico Viejo contained the oldest tinaja encountered in the valley, bearing a date of 1590. While no volcanic ash was noted, it is likely that the site was in operation during the sixteenth century. Due to heavy disturbance of the site, it was unfortunate that additional testing was not possible.

Volcanic ash thought to be from the eruption of Huaynaputina was noted at Soledad, Chincha, and Locumbilla bodegas. At Soledad, while no artifacts were recovered from below the ash, the preponderance of pre-Colonial artifacts (largely fiber-tempered pottery) and unidentified coarse earthenwares in tests suggests that Early occupation of the site occurred prior to the beginning of Colonial period. At Chincha and Locumbilla, the ash was located in shovel tests and was subjected to further investigation through subsequent excavations, which, along with further work at Yahuay and Estopacaje, are discussed in Chapters 6 and 7.

CHAPTER 6
SITE EXCAVATIONS

The following material is primarily a descriptive narrative detailing the strategy and interpretation of archaeological excavations at Locumbilla, Chincha, Yahuay, and Estopacaje (Figure 6.1). Discussion of the physical characteristics of each site was presented as part of Chapter 5; this chapter provides information on the strategies employed in subsequent excavations, and documents stratigraphic relationships and important features encountered during those excavations. Interpretations of site formation processes are offered as probable or tentative explanations based on site stratigraphy and recovered artifacts. This section does not include artifact interpretation or analysis, however, as its focus is the general spatial and temporal parameters of the four sites. Not all features, postholes, or areal deposits are discussed individually, but those which are thought to be significant to an understanding of site formation processes.

Excavations at Locumbilla

Excavations were conducted at the mid-valley site of Locumbilla bodega during the 1987, 1988, and 1989 field seasons (Rice 1987, 1988, 1989, 1990). The site was selected for excavation owing to its good state of preservation, and the fact that it was mentioned in early documents as having been in operation during the sixteenth and early seventeenth centuries (Kuon Cabello 1980). The 1610 will of Alonso de Estrada mentions

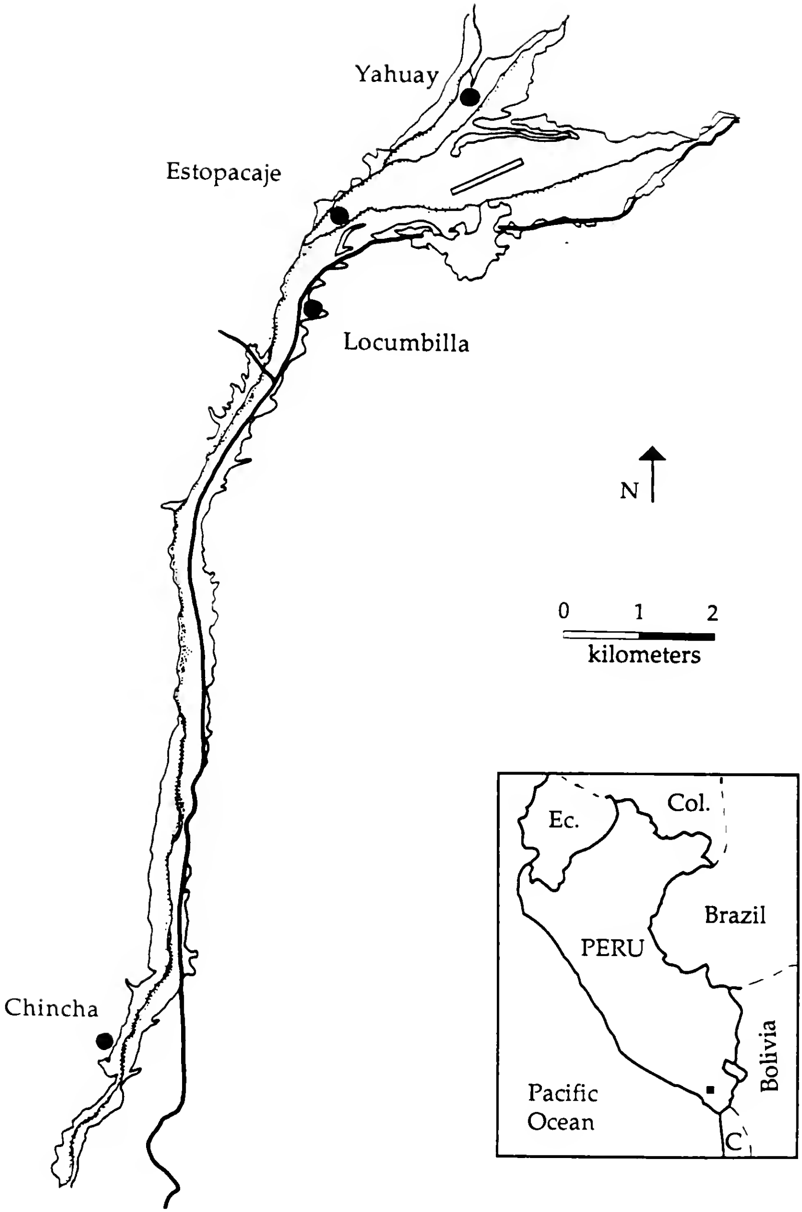

Figure 6.1: Location Map of the four bodega excavations, 1987-1989

Locumbilla as one of his property holdings, which also included the nearby site of Yaravico. Shovel testing at Locumbilla located a substantial deposit of volcanic ash, which overlay Colonial material and validated early occupation. In terms of cultural remains, the site yielded the largest artifact and most informative assemblage of the 28 sites that were tested.

Excavation goals at Locumbilla evolved from year to year as more was learned about the site and about the archaeology of Moquegua. In the first year, 1987, excavations were geared toward gaining a general understanding of domestic and industrial use of the site, based on results from shovel tests as discussed in Chapter 5. Additionally, these excavations provided the first opportunity for gaining a temporal and stratigraphic understanding of artifact deposition that was not possible during the shovel testing program. These goals were successfully met, as evidenced in a dataset that spanned three centuries of Colonial occupation and in the eventual discovery of an extensive sixteenth century component and a buried kiln.

In 1988, continued excavations at Locumbilla were directed toward further defining the area of sixteenth century occupation. During that time, structural evidence was recovered that suggested the early deposit was largely undisturbed and much more extensive than had been thought originally. Additional excavation was conducted in the area of the buried kiln, which is the subject of a separate study (Van Beck 1991).

During a third field season at Locumbilla in 1989, excavations were again focused on the sixteenth century component delineated by volcanic ash. The remains of a sixteenth century structure were uncovered that contained artifacts of both native and introduced origin. A second structure had been built atop the volcanic ash, representing an early seventeenth century reconstruction of structures destroyed by the tumultuous seismic effects of the

Huaynaputina eruption of February 19, 1600. Additional structural remains at the site, most of which are visible at surface, reflect the growth and development that Locumbilla underwent during the years of its subsequent occupation.

A total of 32 units was excavated at Locumbilla during 1987-89 that are reported herein (Figure 6.2). Sixteen were dug in 1987, including four located in the vicinity of the buried kiln. These are the only kiln-related excavations that are included in the present study; the definitive discussion of this major site feature has been completed by Van Beck (1991). From the 1988 field season, four excavation units in the southeastern portion of the site are discussed. The last season of excavations, 1989, saw the completion of 12 units in the southeastern part of the site, which is the focus of the majority of the following discussion.

In order to provide the clearest presentation of results from Locumbilla, excavations will be addressed as they reflect specific site goals. The rationale behind the placement of excavation units at Locumbilla, as at all four of the excavated sites, was based on a combination of shovel test results, temporal/functional questions related to standing structures or site topography, and an effort to sample multiple site areas through judgmental unit placement. As listed in Table 6.1, which includes information on unit dimensions, excavations are discussed with reference to: 1) the sixteenth century component, 2) the kiln area, 3) structural features, and 4) random locations around the site.

The Sixteenth Century Component at Locumbilla

Locumbilla bodega contained the most extensive deposit of volcanic ash from the A.D. 1600 eruption of Huaynaputina encountered in the

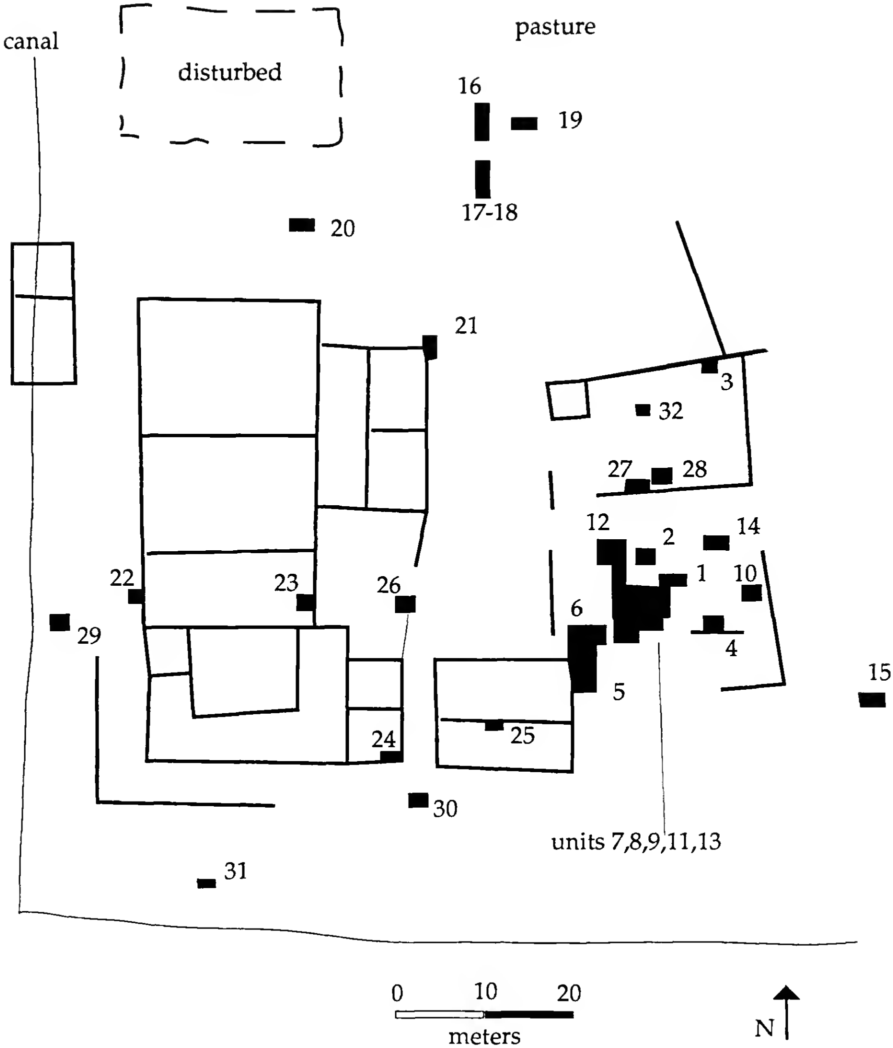

Figure 6.2: Excavations at Locumbilla, 1987-89
(numbers correspond to unit numbers in Table 6.1)

Table 6.1: Excavations Units at Locumbilla, 1987-89

16th Century Component

Unit #	Coordinates	Dimensions (m)
1)	957.5N/1061.5E	1.5 x 3
2)	962.5E/1056.5E	2 x 2
3)	980N/1061E	2 x 2
4)	953.5N/1059.5E	2 x 2
5)	948.5N/1045.5E	5.5 x 2
6)	953.5N/1045.5E	2.5 x 1.5
7)	954.5N/1050.5E	3 x 3
8)	957.5N/1050.5E N/S 1/2	2 x 1.5
9)	955.5N/1048E	4 x 2.5
10)	957.5N/1061.5	2 x 2
11)	957.5N/1050.5E E/W 1/2	2 x 7
12)	961.5N/1046.5E	3 x 3
13)	959.5N/1048E	2 x 1.5
14)	962.5N/1056.5E	1.5 x 3
15)	952.5N/1072E	1.5 x 3

The Kiln Area

Unit #	Coordinates	Dimensions (m)
16)	1010N/1040E	5 x 1.5
17)	1003.5N/1040E	1.5 x 3
18)	1006N/1040E	1.5 x 1.5
19)	1011.5N/1044.5E	2 x 1
20)	1000N/1020E	3 x 1.5

Table 6.1 -- continued

Excavations Near Walls and Structures

Unit #	Coordinates	Dimensions (m)
21)	953.5N/1048E	2 x 2
22)	961.5N/1000E	1.5 x 1.37
23)	959.5N/1019E	2 x 1.5
24)	942.5N/1026.5E	2.8 x 2.15
25)	946N/1039E	1.7 x 1.1
26)	959.5N/1028.5E	2.5 x 3
27)	969.5N/1051.5E	2 x 2
28)	968N/1049E	1.25 x 2.5

Judgmentally Placed Units

Unit #	Coordinates	Dimensions (m)
29)	958N/993E	2 x 2
30)	937N/1030E	3 x 1.5
31)	928.5N/1007E	3 x 1.5
32)	975.5N/1050E	1.5 x 1.5

Moquegua Valley. In the southeastern part of the site, an area measuring approximately 40 square meters retained an undisturbed thin (0-15 centimeters) layer of ash located between 50-100 centimeters below ground surface. This sector of the site, which included domestic, industrial, and structural remains, provided the only sixteenth century Colonial data recovered from controlled excavations at the wineries. With the ash as a reference point for isolating sixteenth century deposits, it was possible to obtain a good idea of early activities at the site, and to document changes that occurred in Colonial material culture.

During the 1987 season three units were excavated in the southeastern sector, where shovel tests had revealed the presence of a volcanic ash lens (see chapter 5 for a discussion of shovel test results). Unit 957.5N/1061.5E (number 1 in Figures 6.2 and 6.3) was placed within a flat area where low wall remnants suggested the presence of a former structure. Eight soil zones were excavated before reaching sterile subsoil at a depth of 1.16 meters below surface. Below upper guano layers, concentrations of rock were encountered as well as a small posthole and post, the latter of which are thought to have been used in animal tethering rather than for structural purposes.

At the base of a thin lens of volcanic ash (97 centimeters below surface) bone, metal fragments, a grinding stone, and unglazed pottery were found, in addition to two small pit features that were intrusive into sterile subsoil. Feature 2 measured 14 centimeters in diameter and consisted of a concentration of corncobs that had a top elevation of 97 centimeters below surface and a base of 104 cm; Feature 3 was a small deposit of burned bone and charcoal that filled a straight-sided pit. The bone was primarily large mammal bone, that was apparently burned within a hole (38 by 32 centimeters) scooped into rocky subsoil from 97 to 138 centimeters below

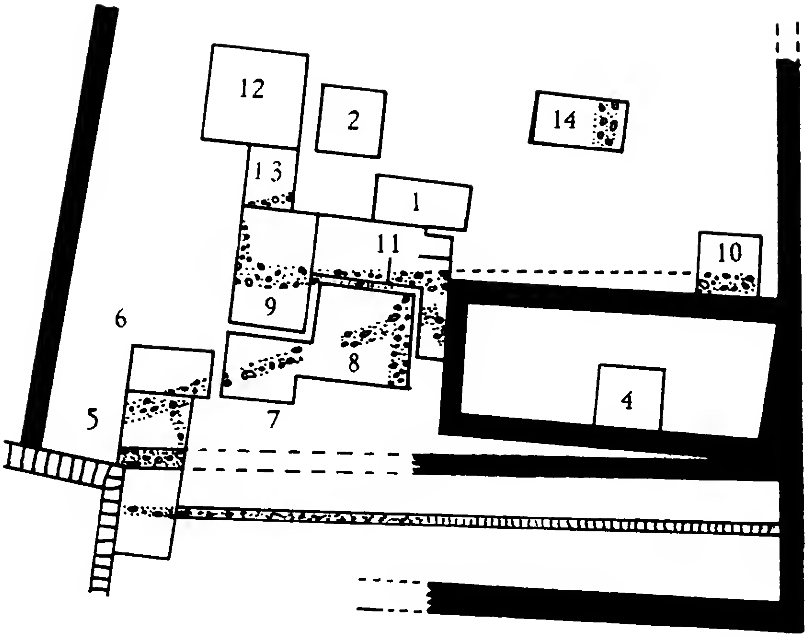

Figure 6.3: Area of 16th and 17th Century Structures in the Southeastern Corner of Locumbilla (numbers correspond to unit numbers in Table 6.1)

present ground surface. Marcelo Arroyo, who assisted in field supervision at Locumbilla, noted that he had seen similar deposits in northern Peru that were interpreted as having been left by workmen involved in the construction of Colonial churches. It was speculated that this part of the site might represent a habitation area associated with sixteenth century occupation at Locumbilla. A radiocarbon sample from Feature 3 (Beta-22433) was calibrated to A.D. 1630 +/- 60 years.

A second unit, 962.5N/1056.5E (number 2 in Figure 6.3), was placed nearby in an attempt to gain additional sixteenth century data and to locate a possible structure. Soils in this excavation corresponded with those in the previous unit, and two small deposits of corncobs (Areas 1 and 2) similar to Feature 2 were also excavated below the volcanic ash lens. Rocky sterile soil was reached at 61 centimeters below surface, and no structural evidence was encountered.

Unit 980N/1061E (number 3 in Figure 6.2) was set in the northeast corner of a stone-walled enclosure on the east side of the site. The adobe and stone wall appeared to be late-dating in terms of construction, but shovel tests in the area indicated that it lay within the northern edge of the volcanic ash deposit. Artifacts recovered from 10 centimeters of soil below the ash included one fragment of Panamanian tin-enameled pottery, Mechero Plain ware, peach pits, plain pottery, tinaja fragments, and bone. Artifacts in soil zones above the ash lens suggest the zones date to the Middle Period, and the initiation point of the stone wall suggests that wall construction also took place within that time span.

One interesting aspect of the construction of this wall was a stone-lined "drain" located just below ground surface that appeared to have emptied into another stone enclosure that was uncovered within the excavation. This

enclosure was a one-course layer of stones that formed a 90 centimeter square within the corner of the standing corral. The drain, measuring 20 centimeters square, had a thin layer of white powdery material (lime?) concentrated below it that seems to have been introduced through the drain. A small kiln and a concentration of lime-like material is in fact present approximately 30 meters north of this area, which may be associated with this structural feature. While the exact use of this drainage/collection area is unclear, the use of calcium minerals was common in making mortar, in enhancing agricultural soils, and in viticultural contexts, so its presence was not a complete surprise. With respect to viticulture, powdered gypsum is sometimes sprinkled over grapes before or after crushing in order to decrease spoilage, a process known as "plastering" (Rice and Van Beck: in press). Additionally, a lime- or gypsum-like substance was used as a stopper for numerous botija mouths recovered at Locumbilla (as discussed in Chapter 7).

In 1988, three units were excavated in the southeastern part of the site that were found to contain an undisturbed lens of volcanic ash. Since the majority of the field season was spent excavating near the kiln in the northern part of Locumbilla (Van Beck 1991) and at the site of Chincha (discussed subsequently), only a limited amount of time was spent exploring the sixteenth century component at Locumbilla.

Unit 953.5N/1059E (number 4 in Figure 6.3) was located within the outline of a structure to the southeast of the ash-bearing units excavated in 1987. A set of low adobe wall remnants mark the edge of the level platform that is present in this part of the site. In the uppermost soil zones of the unit a number of late-dating artifacts were found, including a crumpled oil painting on canvas. Below was a thick layer of grape seeds, vines, and stems, as well as a lens of volcanic ash. Although the ash indicates a sixteenth

century context within in this unit, the majority of materials recovered reflect primarily seventeenth century activity.

Unit 948.5N/1045.5E (number 5 in Figure 6.3) was a trench located at the northeast exterior corner of the standing two-room adobe structure in the southcentral part of the site. A late-dating stone pavement was encountered in the uppermost zones of the central part of the unit, and a builder's trench for constructing the foundation of the two-room structure to the east was also noted in the northwest corner of the excavation. Both constructions were dated by European pottery from the Late Period, as were the soils deposited in the southern part of the trench excavation, which was downsloping and shallow. In the central part of the unit was a very substantially-constructed wall that was built in two phases, as seen in color differences in the mortar used in upper and lower levels. (The subject of this wall, which represents Structure 2, is returned to in a later discussion).

At the northern end of this unit the corner segments of a stone wall were uncovered. One wall ran east/west along the north profile of the trench, while a second wall, running north/south, adjoined it along the east profile of the excavation. An extension unit, 953.5N/1045.5E (number 6 in Figure 6.3), was begun to the north of the trench in order to expose these walls more thoroughly. Again using the presence of volcanic ash as a dating tool, we were able to determine that the walls were already in place when Huaynaputina erupted in February of 1600. Artifacts recovered from below the ash were comprised solely of coarse earthenware sherds, one of which was Cuy Plain, a colono-ware.

As is often the unavoidable bane of the archaeologist, these discoveries came during the last days of the field season. While it was impossible to recover a great deal of sixteenth century information from the southeastern

portion of Locumbilla in 1988 due to other field activities, we did gain the knowledge that the data were there. The excavation of these three units provided a key bit of temporal and structural data that ultimately led to our return to the site in 1989. When we returned, our complete attention was focused on the southeastern sector.

In 1989 a series of units was opened in order to follow the sixteenth century wall farther to the northeast. Unit 953.5N/1048E (number 7 in Figure 6.3) was set in directly to the east of the wall located the previous year, hereafter referred as representing Structure 1. Two additional excavations, 954.5N/1050.5E and 955.5N/1048E (numbers 8 and 9, respectively, in Figure 6.3) were opened adjacent to the first, with baulks left between each. The three units were excavated to the level of volcanic ash, where the baulks were removed and the units were suspended for mapping. Deposits above the ash (post-February 1600) within all three excavations were virtually identical, characterized by a 10 to 50 centimeter layer of grape seeds and a large quantity of botija fragments, plain and decorated pottery, and lime.

Figure 6.4 illustrates the distribution of volcanic ash and the position of Structure 1 relative to the excavated area, which is hereafter referred to as the Block Excavation. Also seen are two additional walls that lie within the north and east profiles of the Block Excavation. Representing Structure 2, these walls were constructed in two stages: gray clay and rock were used in the lower portion (level 2) and pink clay in level 1. The walls were approximately one meter in height, composed of a number of medium-sized rocks with larger stone foundations. This was the same type of construction as that in the east-west wall noted in 1988 in unit 948.5N/1045.5E, which led us to surmise that these large, two-tiered walls represented one large

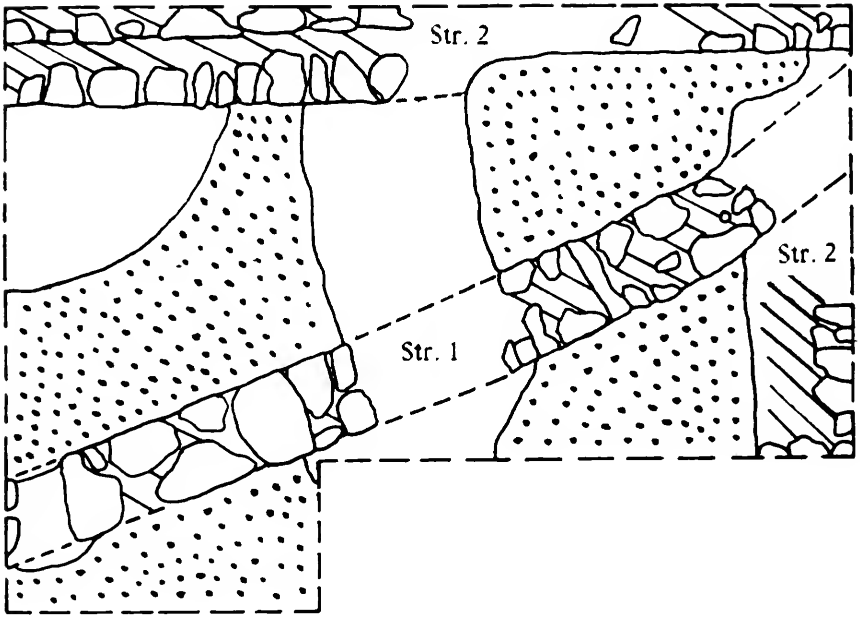

Figure 6.4: Map of In-Situ Volcanic Ash and Structures 1 and 2
(stipple indicates ash)

structure, probably post-1600 in construction, that now enclosed the remnants of the sixteenth century Structure 1.

Unit 957.5N/1061.5E (number 10 in Figure 6.3) was excavated in order to determine the easternmost extent of Structure 2. The excavation confirmed that the walls of Structure 2 did extend the length of the flat platform that comprised this part of the site, and also determined that the walls were built on top of the volcanic ash. This unit also served to support our belief that large quantities of grape seeds were to be found only within Structure 2 (i.e., south of the east-west wall seen in Figure 6.5), as grape seeds were found in quantity slumping in from behind the stone wall when sterile soil was reached in the unit.

In order to provide information on both interior and exterior activity around Structure 2, an L-shaped, two-part trench was set in along the north and east sides of the Block Excavation. The northern part of 955.5N/1048E became the first segment of what came to be called the Elbow Trench (number 11 in Figure 6.3). Using 957.5N/1050.5E as the southwestern corner, a dog-leg trench was constructed: the east/west leg ran 5 meters west and was 2 meters wide (N/S), while the north-south section was 2 meters long and 1.5 meters wide (E/W). By excavating this trench in this way it was possible to sample the deposits exterior to Structure 2 as a means of comparison with those deposits inside the structure. After excavating both sides of the northern wall of Structure 2, a sealed doorway was noted in profile and excavated; the lack of European artifacts within the fill suggests the door was blocked prior to 1780.

Figure 6.5 shows the two combined excavations in plan view at the level of sterile subsoil, with the exception of the standing walls of Structure 1. In the center of the plan the sealed doorway and post can be noted. Also seen

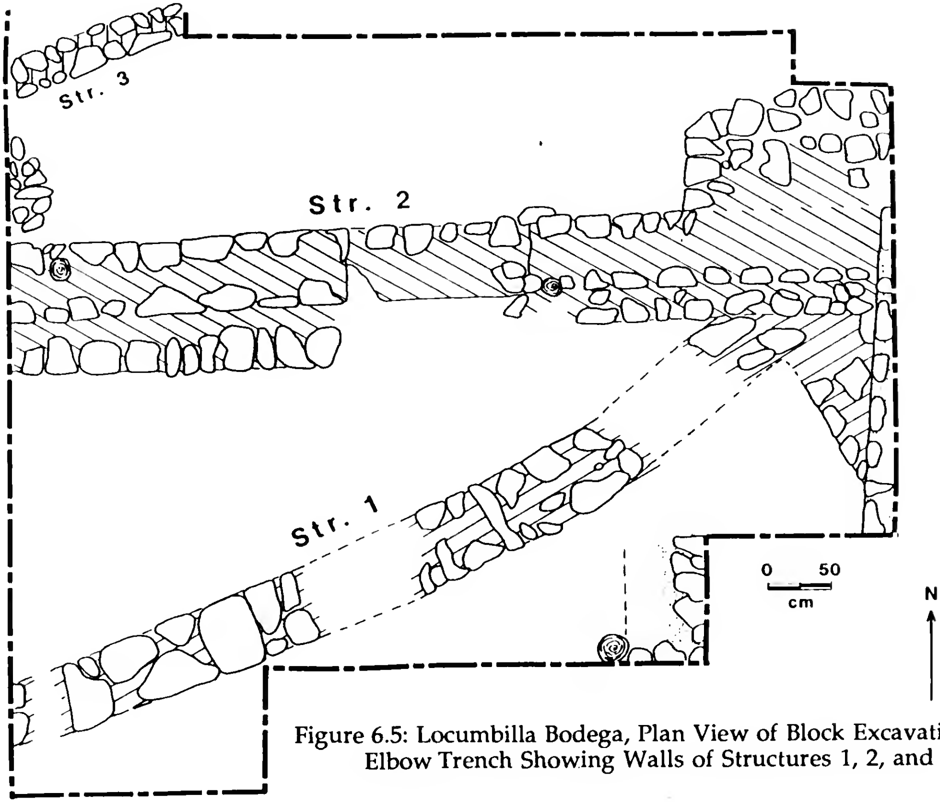

Figure 6.5: Locumbilla Bodega, Plan View of Block Excavation and Elbow Trench Showing Walls of Structures 1, 2, and 3

are additional segments of Structure 1 (at the south side of the east profile) and fragmentary evidence for an additional room or associated structure (Structure 3). This plan, and the larger view provided in Figure 6.3, can be used to summarize the complex construction and occupation sequence of Structures 1 and 2.

Structure 1 runs southwest-northeast, with an additional segment continuing southeast at a similar angle to that taken by the westernmost wall of the structure. These two segments suggest a length of approximately 10 meters for Structure 1; the width of the structure is unknown. The walls designated Structure 3, while situated at the same angles as Structure 1, are much narrower in dimension than those of the latter and, while similar, do not appear to be part of the same structure. However, given that the walls representing Structures 1 and 3 both predate the 1600 ashfall, it may be that the two are temporally and functionally related. The mixing of volcanic ash with the remnant stones from Structure 1 suggests the eruption of Huaynaputina caused the structures to collapse in the year 1600.

Discontinuities in the presence of volcanic ash (as seen in Figure 6.4) appear to be related to robbing the walls of Structure 1: gaps in the ash layer correspond to missing segments of the wall probably used to make the walls of Structure 2. Other sixteenth century wall remnants, i.e., rocks and clay, were readily apparent in the excavation profiles over, above, and mixed with the volcanic ash (Figure 6.7), reflecting the destruction that accompanied volcanic eruption and seismic activity.

With respect to Structure 2, the presence of undisturbed volcanic ash below its walls suggests that construction took place shortly after the eruption of Huaynaputina, in the early seventeenth century. While not visible under every rock or every wall segment, the ash was sufficiently present to provide

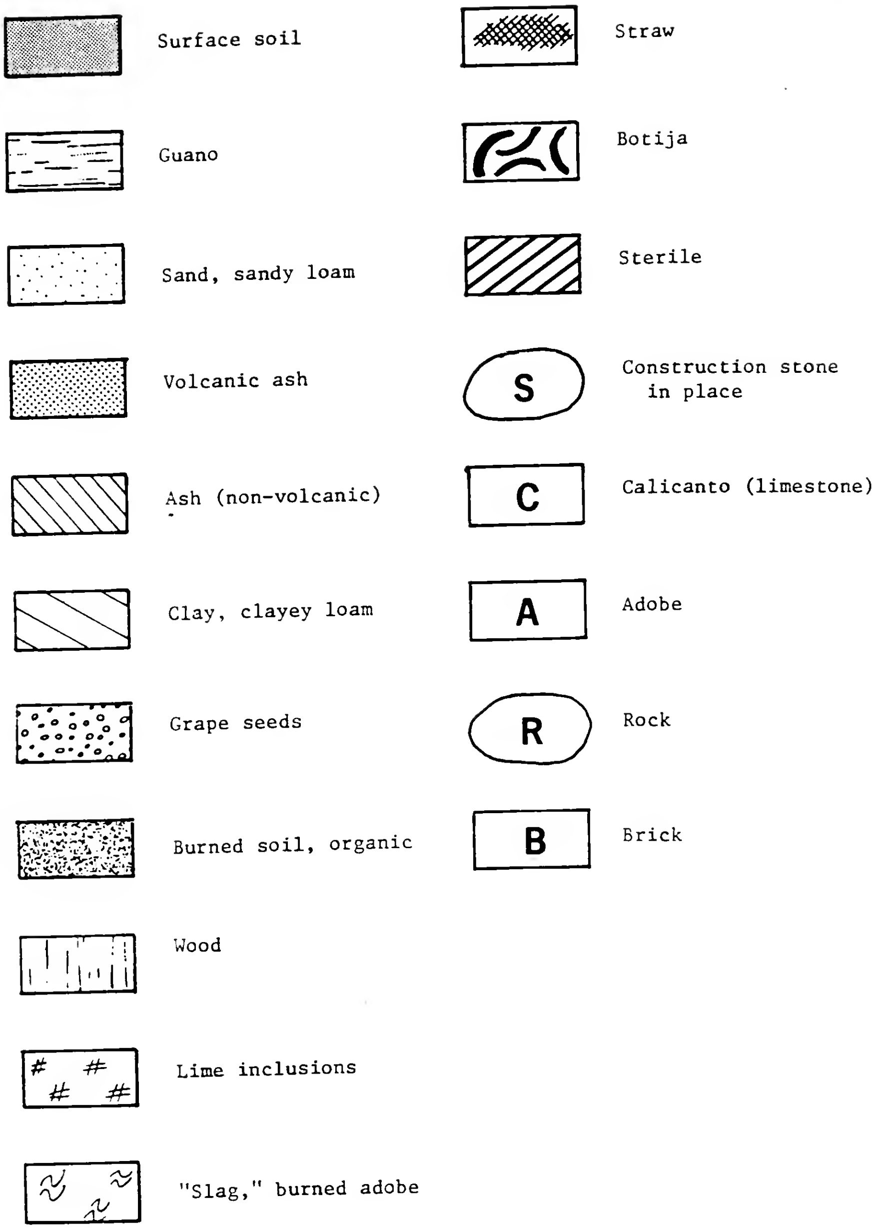

Figure 6.6: Key to Excavation Profiles

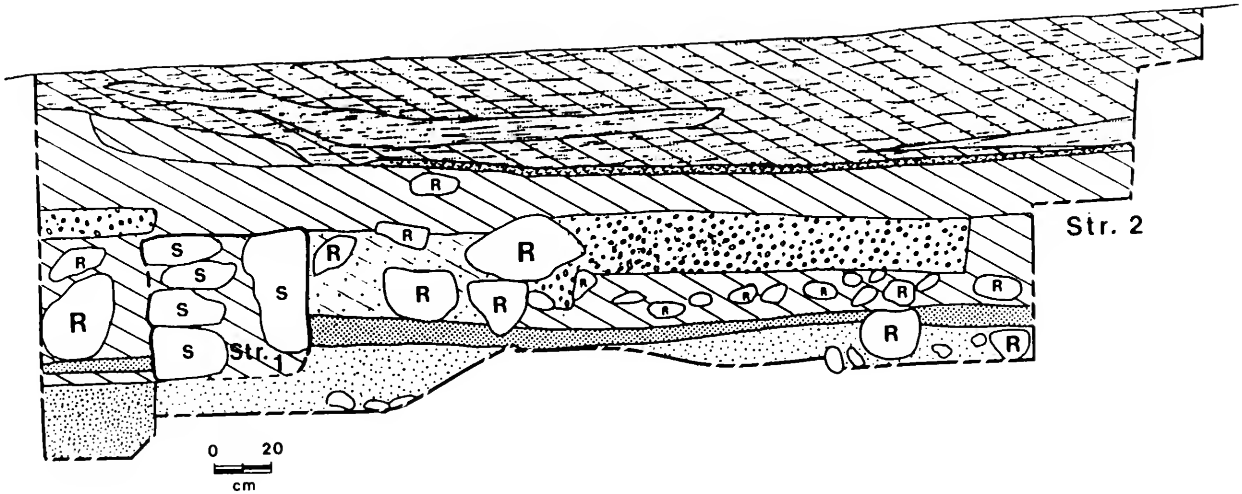

Figure 6.7: Locumbilla Bodega, west profile of Block Excavation

strong support for this date. A change in the orientation of this structure to north-south by east-west (as opposed to the southwest-to-northeast orientation of Structure 1) and the great effort expended in constructing a bigger, better, and more stable wall bespeaks the desire of those who built Structure 2 for its walls to endure longer than those of the previous structure.

Inside Structure 2, above the sixteenth century component, were layers of wall fall (clayey sand and rock; Zones B and C) that were capped by a thick (10-30 centimeters) deposit of grape seeds that was often mixed with gray-brown sandy loam, small botija fragments, and lime. Outside the doorway to Structure 2, however, an incredibly-packed zone (H) of great quantities of botija, lime, undecorated pottery, and small rocks served to differentiate the deposits interior and exterior to the structure. While the same basic types of artifacts were recovered, they were larger in size and quantity outside of Structure 2 and the deposit lacked the grape seeds present inside the structure. Above both the interior and exterior deposits around Structures 1 and 2, a clay floor seems to have been placed, probably during the late eighteenth century.

Four additional units were dug in the area of the volcanic ash deposit. Unit 961.5N/1046.5E (number 12 in Figure 6.3) was a large, 3 x 3 meter unit randomly placed in an area where the ash was expected. Owing to the presence of the ash, two proveniences were clearly dated to the sixteenth century, and two zones that were stratigraphically below the ash level were also dated to the Early Period. The remainder of the later deposits, with the exception of the uppermost levels, reflect seventeenth and early eighteenth century contexts.

In an attempt to gain further data from this part of the site, a small unit was placed between the unit discussed above and the large Block and Elbow Trench excavation. The unit, 959.5N/1048E (number 13 in Figure 6.3), was

also meant to further investigate the sixteenth century layer and to uncover the remnant wall of Structure 3 (as seen in Figure 6.5). While the material below the ash was depositionally homogeneous on both the north and south sides of the Structure 3 wall, post-ash deposits differed markedly in character although they appear contemporaneous. Instead of finding more of the thick deposit of botija, pottery, lime, and rock that was found outside Structure 2 in Zone H of the Elbow Trench, a jumbled series of red-coated clay blocks were found associated with and mixed with volcanic ash to the north of the Structure 3 wall fragment. These blocks were in no order or level distribution, although they suggest a paving surface or facing. Additional work would be necessary in this location in order to say more about Structure 3, and the different activities it seems to have separated.

Unit 962.5N/1056.5E (number 14 in Figure 6.3) also provided a sixteenth century context. A small, charcoal-filled hearth (Fogon 2) was found to intrude into sterile subsoil and was subsequently capped by a clay floor. These proveniences contained artifacts such as botija fragments, Mechero ware, bone, and plain and painted coarse earthenwares, which were covered by a layer of volcanic ash. Another rock and clay wall in the two-layered style of Structure 2 was found to run north-south through the unit, which may represent a connection with that structure. Later accumulations, including grape seeds, reflect primarily seventeenth and eighteenth century activity.

In the extreme southeastern corner of the site, unit 952.5N/1072E (number 15 in Figure 6.2) was excavated in an area where we had noted a deposit of botija fragments and fired adobe bricks. One passerby had opined that an oven of some sort had once stood in the general vicinity; we hoped to uncover a ceramic production center. Two thick layers of clay and botija fill

followed the downslope that characterizes this part of the site. Below lay a rocky soil layer, partially capped by volcanic ash, that contained some botija sherds and a Tiwanaku-style kero base fragment. Due to time constraints we were unable to place further excavations in this area.

The Kiln Area

Shovel testing at Locumbilla brought to light an abundance of overfired, slag-like adobe fragments at the northern end of the site (Rice 1987). This deposit, which was concentrated in and around a depression, included many fragments of botija, which prompted an investigation of this area in anticipation of recovering some sort of industrially-related data. Five units were excavated during the 1987 season that eventually led to the discovery of a buried kiln used in the manufacture of botijas. These preliminary excavations are included in the present study, while the details of the kiln excavation are treated by Van Beck (1991).

Given the density of deposits noted in shovel tests, a series of 1.5 meter wide trenches were dug in the area of the depression. Unit 1010N/1040E (number 16 in Figure 6.2), which was oriented north-south, first revealed the complexity of this part of the site. Below the usual upper deposits of guano, one zone (C) contained 212 kilos of botija fragments above sterile rocky subsoil at 125 centimeters below surface at the north end of the unit. In the southern half, however, sterile subsoil dropped off sharply, with deposits including enormous boulders and continuing to much greater depths (3.1 meters). Numerous soil zones, pockets of moist clay, and overfired adobes were recovered within this deep deposit, which reached sterile below a thick layer of ash, bone, and burned wood (Feature 1). Artifacts from the feature included primarily scoria, lime chunks, unfired clay, and botija fragments.

Additional units were dug in order to define the edges of the deep depression that had been cut into rocky sterile substrata. A second trench that comprised units 1003.5N/1040E and 1006N/1040E (number 17-18 in Figure 6.2) was excavated south of the first trench in order to uncover the southern end of the depression. It was determined that a hole 6.2 meters north-south had been cut into sterile. A fourth unit, 1011.5N/1044.5E (number 19 in Figure 6.2), failed to uncover the eastern edge of the excavated depression, and noted a continuation of a layer of botija fragments (Figure 6.8).

Because of other activities at additional units around the site, these excavations were not profiled immediately, which proved to be to our good fortune. After 2 weeks of drying in the hot desert sun, the formerly moist clay in the profile of 1010N/1040E had taken on the appearance of an arched line of adobes. The initial impression gained was that we were within, or very near, a buried kiln. Given the depth of the deposit (3-4 meters to sterile) extensive excavations over the next two seasons were required before a complete understanding of the kiln, which was used in firing botijas, was gained (Van Beck 1991).

One additional excavation in this area, 1000N/1020E (number 20 in Figure 6.2), was placed at the edge of a rise in elevation at the western side of the depression. The purpose of this excavation was to locate the edge of the depression and to investigate a line of stones evident at surface. Designated Feature 4, the stones proved to be part of a late-dating wall that ran north-south and may have served as a corral similar to one observed in a very disturbed area located slightly to the north, as seen in Figure 6.2. Overall, this unit had a complicated stratigraphy consisting of 13 zones. Below uppermost guano, deposits consisted of grapes, botija fragments, ash, and small lime

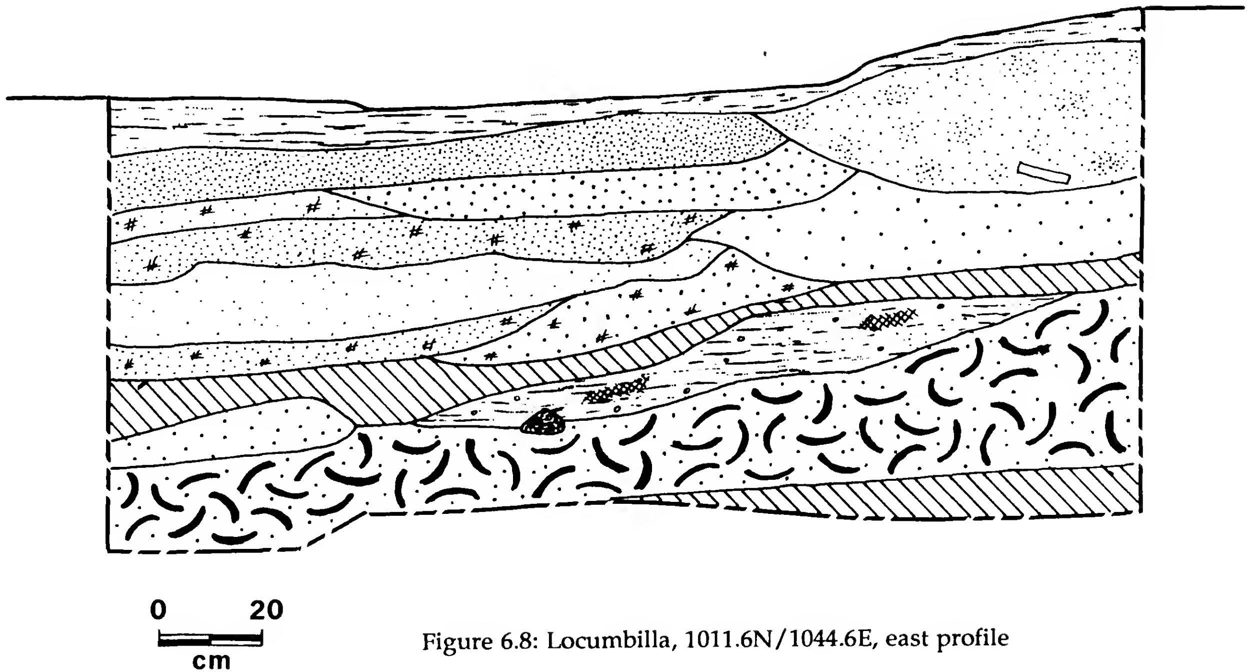

Figure 6.8: Locumbilla, 1011.6N/1044.6E, east profile

inclusions; soils sloped down to the southeast, and constituted an extension of the large depression into sterile.

Excavations in the kiln area at the north end of Locumbilla reflect activity during the Middle and Late periods of the valley occupation. No volcanic ash was recovered from any of the excavations in this part of the site. Artifactual evidence points to an initial seventeenth century use of the area, strengthened by a radiocarbon date of A.D. 1656 calibrated from a sample associated with the kiln (Beta Analytic #33725).

Excavations near walls and structures

Six units were placed near structural features at Locumbilla in order to determine stratigraphic relationships and techniques used in construction. No volcanic ash was encountered in any of these excavations. In Figure 6.2 and Table 6.1, the units are numbered from 21 to 32, with temporal interpretations and a brief discussion of each presented below.

Unit 984N/1032.5E (#21) was placed at the exterior edge of a lagar at the north end of the site. The adobe wall was built atop 60 centimeters of stone and mortar construction, as well as several dressed blocks of limestone. Below this, the corner rested on large boulders (as much as 75 cm in maximum extent) that rested on sterile soil at approximately 195 centimeters below surface. Analysis of the contents of a builder's trench (Feature 6) that was intrusive into lenses of guano, lime, and ash indicates that this lagar was constructed during the Middle Period of the valley's Colonial occupation.

On the western side of the bodega, unit 961.5N/1000E (#22) was set in outside the southernmost tinaja room. A limestone step was found at the entry to the doorway; the adobe wall itself rested on three courses of rounded river cobbles, with sterile subsoil at 90 centimeters below surface. A number

of small, non-structural posts and ill-defined "areas" were encountered that suggest that intermittent small-scale disposal and animal hitching took place outside this doorway in the same way it does today. All but the uppermost soil zones suggest that construction and the majority of deposition in this area occurred during the Middle Period.

East of this excavation, unit 959.5N/1019E (#23) was located inside the southernmost tinaja room against a doorway that had been sealed with adobes. Below surface guano a clay floor was encountered, as well as two broken tinajas whose bases were still in place. Although the tinajas were not removed, it was noted that they were set in at approximately 1.35 meters below present surface, and were covered by thick layers of grape seeds. The proveniences excavated in this unit all date to the Middle Period.

Unit 942.5N/1026.5E (#24) was excavated in a room at the south end of the site where an adobe fireplace or hearth had been noted. This feature (Feature 7) and the sooted walls of the room suggested a kitchen, and in excavating the unit we hoped to recover useful Colonial domestic information. Like other units at the south side of the site, however, many of the deposits here were quite late-dating. The room and hearth appear to have been constructed during the Late Period, with subsequent reuse reflected in the presence of a plastic comb and a 1964 newspaper advertisement announcing the arrival of a circus.

Also excavated in the southern part of the site was unit 946N/1039E (#25), which was placed in the two-room structure that has been proposed as a museum location at Locumbilla. Immediately below surface guano was a brick floor arranged in a herringbone pattern. A single zone was present between the floor and sterile soil that contained few artifacts. Given the general lateness of deposits in this part of the site, the room and floor were

probably built during the Late Period, although no temporally diagnostic artifacts were recovered.

Unit 959.5N/1028.5E (#26) was excavated at the base of an adobe wall bounding a corral-like open space in the south central part of the site. Layers of guano and a post with leather thongs still tied to it were found in upper levels; at greater depth a linear stone construction paralleled the standing adobe wall. Having dated this buried wall to the Middle Period, the unit was suspended and backfilled due to time constraints.

Two final excavations were associated with structural elements at the site. Units 969.5N/1051.5E and 968N/1049E (#s 27 and 28 in Figure 6.2, respectively) were dug north of the sixteenth century component in order to follow a wall buried slightly below surface. It was hoped that excavation in this area would uncover data related to the production of botijas for firing in the kiln to the north. The wall, which was built in a zig-zag pattern rather than in a straight line, was composed of two courses of adobes over a foundation of large stones. While the micaceous clay (similar to that used in manufacturing botijas and Mechero Plain ware) found below the wall may be related to production of ceramic vessels, no real evidence to that effect was recovered. Deposits in the two units date to the Middle Period, owing to a lack of both volcanic ash and late eighteenth century artifacts.

Judgmentally placed excavations at Locumbilla

Four units were randomly placed in various areas of Locumbilla (numbers 29-32 in Figure 6.2). Unit 958N/993E (#29; Figure 6.9)) was the first unit excavated at the site, serving both as a stratigraphic test as a means of evaluating our shovel test interpretations, which suggested Middle Period deposition. The deepest levels were from the Middle Period, lacking late

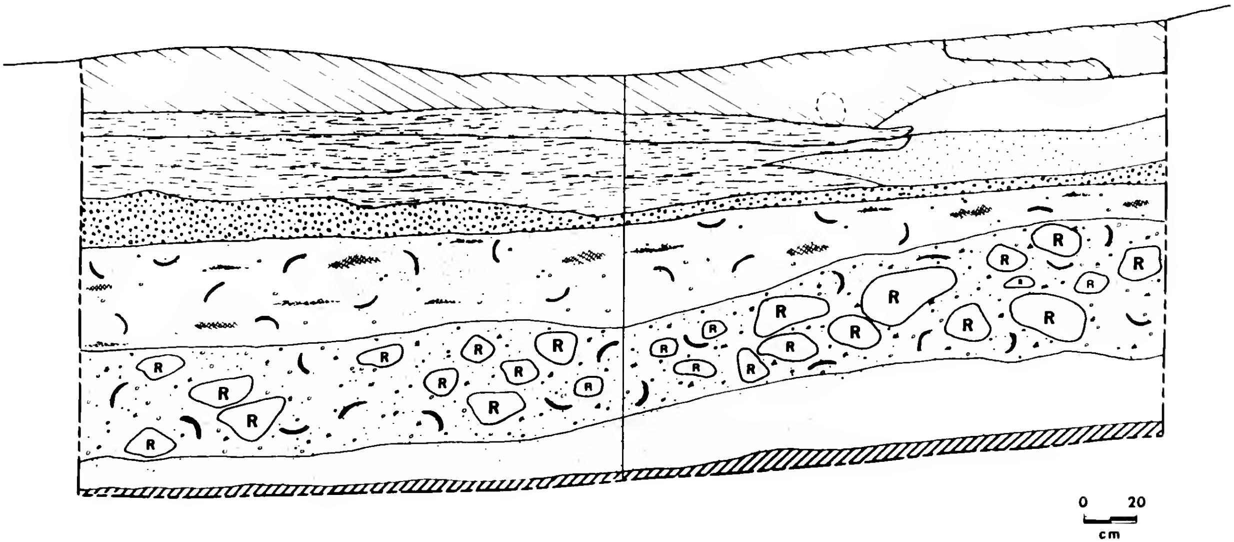

Figure 6.9: Locumbilla, 958N/993E, west and north profiles

European artifacts and comprised primarily of soils containing grape seeds, botija fragments, a few sherds of tin-enameled pottery, and undecorated coarse earthenware. Above that were later dating levels that became all too familiar to Bodegas Project personnel, containing guano, Ray-O-Vac batteries, and heavy quantities of organic material (wood, cane, leaves, and bone).

Two additional units at the south side of Locumbilla confirmed our belief, based on shovel testing, that this part of the site reflected late occupation. Units 937N/1030E and 928.5N/1007E (#s 30 and 31, respectively) were dominated by the presence of European artifacts from the late eighteenth and nineteenth centuries. Both excavations were characterized by sheet deposits of guano and considerable organic remains. The southernmost unit, 928.5N/1007E, was not fully excavated due to an overabundance of guano, which suggests it may have been an area of livestock containment.

The final unit at Locumbilla, 975.5N/1050E (#32) was placed at the east side of the site in an area we hoped might contain evidence of botija production. Below a 20 centimeter deposit of white ash containing Pearlware we encountered a deposit of micaceous clay, probably a continuation of that found in units 27 and 28 to the south. Clay may have been stored in this area until its use, possibly in the production of Mechero Plain ware, which is heavily laden with similar inclusions, or in botija manufacture.

Excavations at Chincha

Excavations were conducted at Chincha bodega during four weeks in June and July of 1988. The site is one of the larger sites in the valley, located far to the south on the western side of the Osmore river. Like many of the wineries, Chincha is situated on a long, narrow hill overlooking cultivated land. In addition to the fact that its location provided a sample of data from

the extreme southern valley, the site was selected for excavation due to its large size and good preservation, and because volcanic ash had been detected during shovel testing. Additionally, the site is owned by Antonio Biondi, a Moquegua pisco producer who enthusiastically supported our investigations.

The site contains two industrial sectors, one at the north and one to the south, with an area of residential use located between the two on the highest part of the hill. The southern part of the bodega consists of two tinaja rooms, a large open room thought to have been used for tonel storage, and a partially destroyed distillery apparatus, or falca (Figure 6.10). While not clearly apparent, the lagares for crushing grapes appear to have been located slightly northeast of the tinaja rooms, as suggested by a number of calicanto stones found after brushing the area with a whisk broom. Either many of the cut limestone blocks were removed for reuse elsewhere, or windblown sand and refuse have filled the tanks and hidden them over the years.

At the north end of the site a second industrial zone is located in a small quebrada in which two standing kilns, one large and one small, are located (Van Beck 1991). A circular, limestone-paved platform for grinding limestone was uncovered east of the smaller kiln using a whisk broom. The residential zone at Chincha consists of a series of adobe rooms that lie along the eastern side of the site. At the highest point of the winery complex a cut stone platform, or patio, that was constructed in a herringbone design is located adjacent to what were presumably the main domestic quarters. Four large open enclosures that probably served as animal corrals are located behind and to the north of these rooms.

A total of 20 units was excavated at Chincha (Figure 6.10; Table 6.2). These were placed in both domestic and industrial areas of the site in order to gain information about the material culture associated with the complex, the

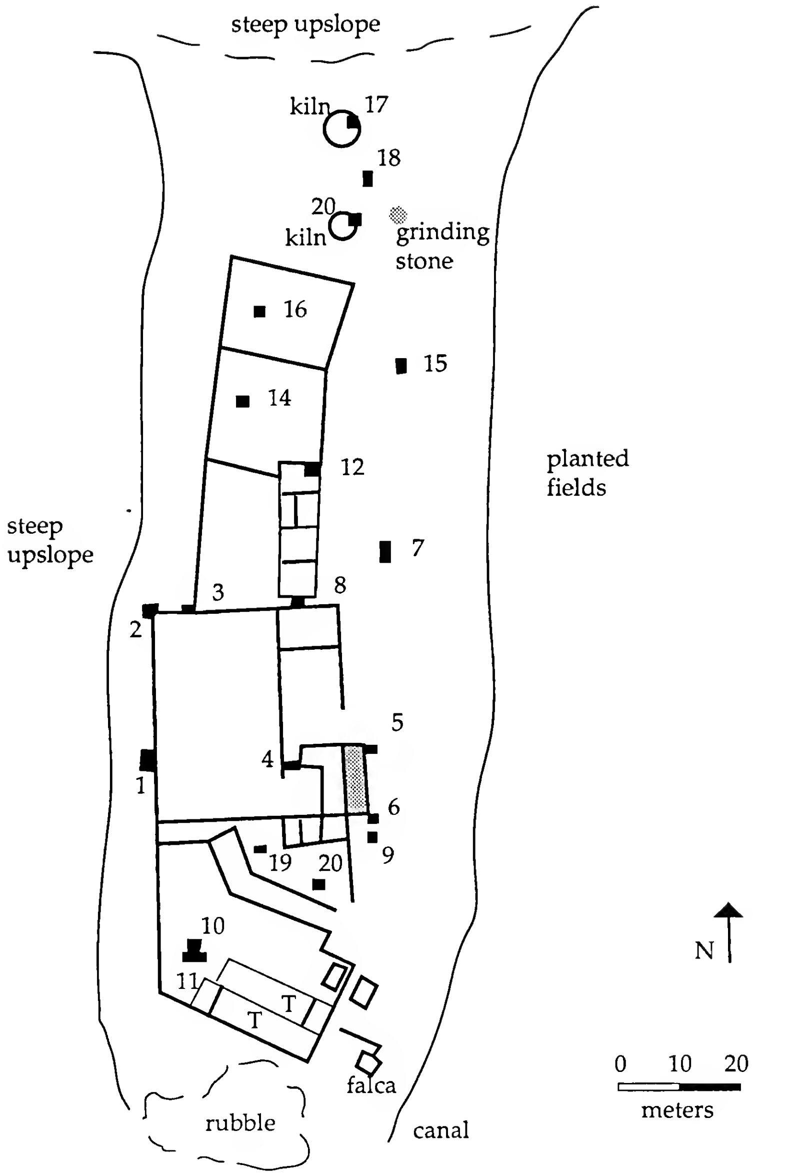

Figure 6.10: Map of Excavations at Chincha, 1988
(numbers correspond to unit numbers in Table 6.2)

Table 6.2: Excavation Units at Chincha, 1988

Unit #	Coordinates	Dimensions (m)	Location
1	1048N/1000E	2 X 2	outside W wall
2	1077.5N/1001E	1 x 2.5	exterior corner
3	1077.5N/1007E	1 x 2.5	exterior corner
4	1047N/1025E	1.5 x 4.2	domestic backwall
5	1050N/1044E	2 x 2.32	N edge of patio
6	1031N/1044E	2 x 2	S edge of patio
7	1087N/1048E	3 x 1.5	trash dump
8	1080N/1032E	1.5 x 3	central site
9	1034.5N/1044E	2 x 2	unit 6 extension
10	1017N/1009E	2 x 2	tonel room; fauna
11	1015.5N/1008.5E	3 x 1.3	unit 10 extension
12	1099N/1033E	2.48 x 1.74	interior room corner
13	1026.5N/1032E	2 x 2	lagar search
14	1116N/1017E	2 x 2	corral; pre-Colonial
15	1119N/1051.5E	2 x 2	trash dump
16	1136N/1019E	2 x 2	corral; pre-Colonial
17	1171N/1030E	2 x 2.1	ceramic kiln
18	1159N/1034E	2 x 1.5	volcanic ash
19	1031.5N/1020E	1 x 2	lagar search
20	1150N/1033E	2 x 2	lime kiln

dates of construction and use of the winery, and the activities that took place there. After re-establishing the grid system used during the 1987 testing of the site, excavations were begun with the assistance of Susan deFrance and nine crewmembers.

The first three units at Chincha were excavated in order to gain domestic and architectural information associated with the west and north walls of the large open room in the central portion of the bodega. Shovel tests excavated in the vicinity produced varying results, suggesting primarily early and middle period occupations, and it was hoped that larger units would uncover useful information and serve as good stratigraphic tests at the site. Units <u>1048N/1000E</u>, <u>1077.5N/1001E</u>, and <u>1077.5N/1007E</u> (numbers 1, 2, and 3 in Figure 6.10) were all placed in this area at the base of a steep slope that rises up along the western edge of the site.

Soils along this side of the site are extremely sandy, having eroded from the hilltop, which is composed of a reddish sandstone locally referred to as <u>moro-moro</u>. While it was impossible to excavate completely to sterile subsoil in these units, owing to constant slumping of the unit profiles, the walls were noted to have been built directly atop the moro-moro.. Results suggest overwhelmingly that this large room was built during the late eighteenth century. Strata from all three units were late-dating, with Pearlware, Ironstone, and Whiteware pottery providing temporal markers. A portion of a cigarette package from "Habana" was recovered from approximately 50 centimeters below surface in 1048N/1000E .

Unit <u>1047N/1025E</u> (number 4 in Figure 6.10) was placed at the northern interior of the large central room, along the back wall of the presumed domestic residence at Chincha. Nearby shovel tests indicated a potential for recovering Early or Middle period refuse, and the placement of the unit

against the rear wall was with the expectation of finding a deposit of domestic remains. Instead of yielding interesting results, the unit was disturbed and contained very few artifacts. A builder's trench for the adobe wall of the living quarters was sterile, while a number of small wooden posts and guano at the west end of the excavation suggest the use of that area as a hitching location. Diagnostic artifacts were restricted to Ironstone, marking a nineteenth century use of the area.

Three units were excavated on the eastern front of the bodega near the stone-paved patio that ran in front of the living quarters facing the valley. Unit 1050N/1044E (number 5 in Figure 6.10) was placed immediately adjacent to the stone patio as a means of dating construction of the paving and the accumulation of earlier deposits, if present. Two zones that pre-date the introduction of late eighteenth century artifacts were found to overlie sterile subsoil, which followed a natural downslope at the edge of the hillside above the canal. A series of Late period deposits, dated by Pearlware, underlay the construction of a thin rock and clay floor, which served to level the previous surface downslope. This floor, as well as the subsequent paved patio, were constructed in the latter half of the nineteenth century, as dated by the presence of a wire nail.

Two units (numbers 6 and 9 in Figure 6.10) were placed south of the stone paving as a means of investigating a possible structure detected on aerial photographs. Unit 1031N/1044E (#6) exposed a portion of a late-dating brick floor near surface, a bone concentration (Feature 1), as well as a linear feature built of rock and clay, Feature 2, which extended north-south and was constructed above sterile subsoil. A second excavation, 1034.5N/1044E (#9), was opened in order to document this stone feature further and to determine its function.

Feature 2 initiated at 110 centimeters below present ground surface and consisted of two parallel lines of large river cobbles that were filled in with smaller stones and sand (Figure 6.11). Measuring 85 centimeters in width, the feature was 70 centimeters in height and was capped by a thin layer of clay. Differences exist in the soil deposits on either side of the feature, which suggest it may have served as a dividing wall of some sort. An eighteenth century date for the wall is suggested by the presence of two sherds of polychrome tin-enameled pottery from Seville (Kathleen Deagan, personal communication 1988) that were recovered in association with the feature. The uppermost soil zones in both of these units reflect late eighteenth and nineteenth century deposition, as dated by Pearlware and Ironstone pottery.

Two units were excavated along the steep downslope above the canal that runs along the eastern edge of the site. This area was targeted in the hopes of uncovering an area of trash disposal, which was indeed located. Units 1087N/1048E and 1119N/1051.5E (numbers 7 and 15, respectively in Figure 6.10) contained a great deal of organic remains, burned trash, guano, and grape seeds. These deposits were very late-dating, however, as seen in the presence of wire nails, Ironstone, and cigarette packages bearing the date 1892. The exception to these finds was Feature 3, a possible pre-Colonial burial located in the west profile of 1087N/1048E. A large capstone atop very loose subsoil was uncovered at 220 centimeters below surface in this unit, as well as pre-Colonial pottery and a concentration of llama and cuy bones. In that the suspected burial appeared to be outside our period of study, the unit was suspended at this level and backfilled without further disturbance.

Two excavation units were dug in a large open room north of the tinaja rooms in the southern, "industrial sector" of the site. The first, 1017N/1009E (number 10 in Figure 6.10), was meant to investigate an area

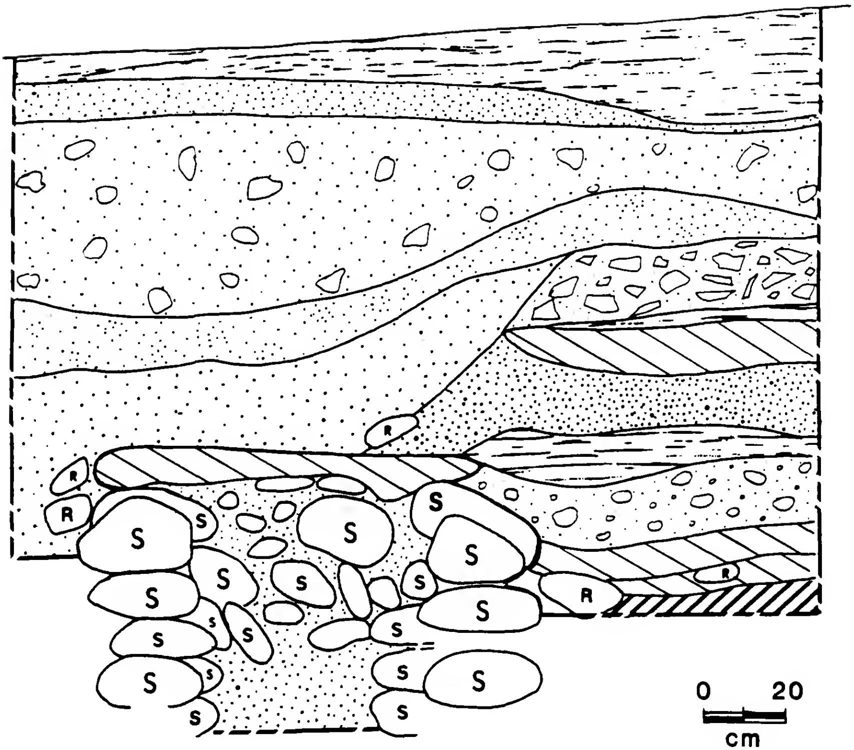

Figure 6.11: Chincha, 1031N/1044E, south profile
(Feature 2 consists of the stones and fill)

identified during 1987 shovel testing as containing a great deal of cow bone. We sampled this area with a 2 x 2 meter excavation, which revealed a dense sheet deposit of bone (as thick as 55 centimeters) that covered the northern part of the unit floor and appears to represent intensive butchering activity. The deposit was excavated as Zone D using a series of three levels. Also present in this unit was a large pit filled with charcoal, bone, and Whiteware that intruded into the upper levels of the unit and was designated Feature 5 (Figure 6.12).

A linear, pinkish clay wall ran east-west across the excavation, forming an edge of the bone deposit and abutting a line of stones. In an attempt to follow and interpret these stones, unit 1015.5N/1008.5E (number 11 in Figure 6.10) was begun to the south as an extension of the first excavation. The stones were subsequently revealed as the top of a square, almost pyramidal "tower" measuring approximately 140 centimeters tall by 220 centimeters wide. Designated Feature 4 (Figure 6.12), although referred to informally as Mel's Rockpile, this construction consisted of very large, crudely shaped blocks of moro-moro set on top of large river cobbles and cemented with a mixture of clay and lime. The deposit of bone found to the north of this stone construction was not present on the south side of the stones.

In the context of Andean archaeology, the general impression gained from a viewing of the feature is that it resembled a pre-Colonial chullpa, or burial tower. From a historical perspective it seemed reminiscent of a sturdily constructed base for a flagpole. Partial excavation of the interior of Feature 4 yielded only a few small fragments of bone, which made dating of the construction problematic. Soil zones below the feature in both the units were found to contain only pre-Colonial pottery and disarticulated fragments of human bone. Botanical analyses of fine-screened soil from a small hearth-

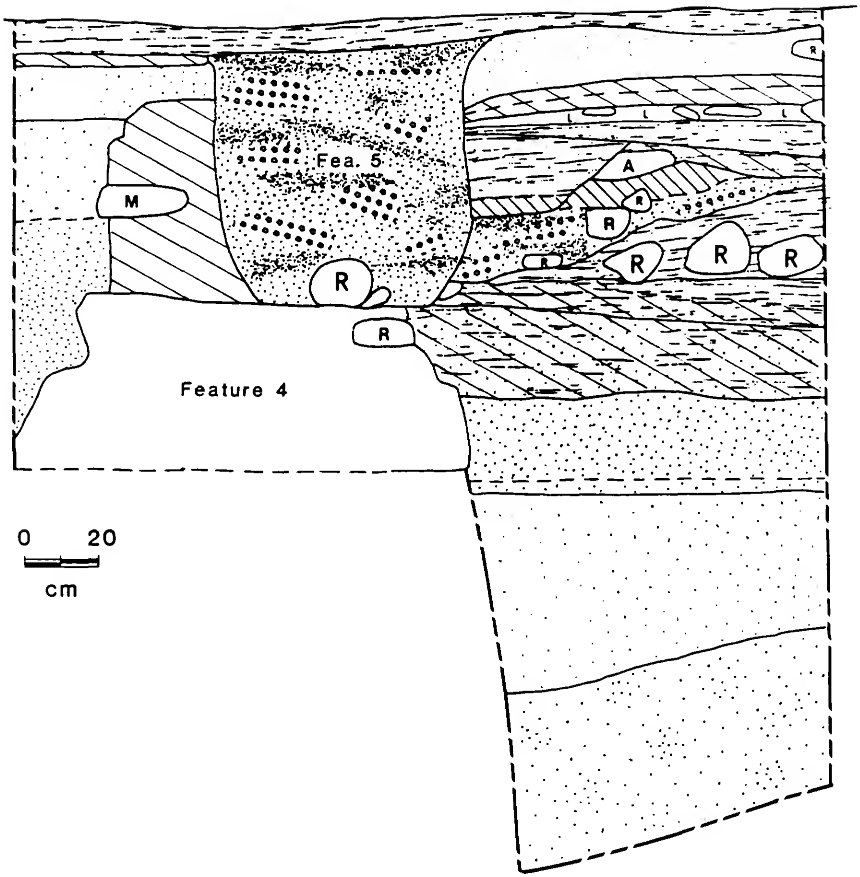

Figure 6.12: Chincha, 1017N/1009E, west profile

like deposit (Feature 7) adjacent to the rockpile, however, identified the remains of introduced plant species such as grape, wheat, and alfalfa. Feature 7, which was located in 1015.5N/1008E, was intrusive into pre-Colonial strata at a depth below the rockpile, which suggests a Colonial date for the construction of Feature 4.

The function of Feature 4 remains unclear. It does, however, serve to separate the thick layer of bone to the north from small discrete deposits of guano and organic material found to the south, and as such seems to have functioned as a structural division. Why the construction occurred in the form of a small tower remains a mystery.

North of the large tonel room are two narrow, dog-leg rooms where two units were excavated in order to investigate room function. Units 1026.6N/1032E and 1031.5N/1020E (numbers 13 and 19, respectively, in Figure 6.10) were placed in the uppermost of the two rooms, both of which are at a much higher elevation than the tonel room. It was initially thought, given the elevation above the tonel and tinaja rooms, that these narrow rooms could have included a series of lagares. This theory was disconfirmed, as no dressed limestone or grape seeds were located in either of the excavations or during the course of room clearing. The first of the units, 1026.5N/1032E, contained only twelve artifacts within two soil zones above sterile soil -- the first lens was dated by Whiteware, while the deeper stratum lacked any diagnostics.

The second unit, 1031.5N/1020E, revealed the fact that a great deal more activity occurred at the western end of this room, both in artifact quantity and depth of deposit. Two walls were uncovered within the excavation that were associated with a variety of domestic artifacts (over 200) from both Middle- and Late-dating periods. The earliest use of this area

appears to have been for human residential purposes before, based on the presence of guano and heavy organic remains, it was given over to occupation by animals. Clearing activities in both of these rooms uncovered small pens that contain evidence for recent habitation by cuys.

Four units were excavated in areas of the north-central portion of Chincha as a means of investigating activities associated with remnant walls or extant rooms. In excavating unit 1080N/1032E (number 8 in Figure 6.10) a wall foundation was uncovered that was built on sterile moro-moro. Artifacts recovered from the three soil zones in this unit were few, including primarily late-dating material, suggesting that the wall and two associated postholes were set in place after 1780. Unit 1099N/1033E (number 12 in Figure 6.10) was excavated in the corner of one of the small rooms along the northeast part of the high ground at the site. The excavation abutted an adobe wall with a rock foundation, and included a clay floor dated by a 1926 coin. Below the floor were two shallow soil zones from Late and Middle Period deposits that contained no evidence as to the room's function.

Two additional units, 1116N/1017E and 1136N/1019E (numbers 14 and 16 in Figure 6.10), were excavated in the two walled corrals built of rock and clay at the north end of the site. Both of these contained evidence of pre-Colonial occupation below the level of the walls in the deepest zones, including Feature 8 in 1116N/1017E, which contained a great deal of pottery and organic material. In 1136N/1019E a builder's trench for an adobe wall was found to intrude into the pre-Colonial deposit, with material associated with the wall dating to the Middle Period. Uppermost soil zones in both units reflected a great deal of burning occurred in this part of the site following the introduction of European products after 1780.

At the extreme northern end of Chincha, three units were dug in a quebrada where the remains of two kilns are located. Shovel testing in this part of the site revealed the presence of volcanic ash, which raised our hopes for finding Early Colonial deposits in this area. Unit 1171N/1030E (number 17 in Figure 6.10) was excavated in the mouth of a large adobe kiln as a means of recovering information on its construction and use. Based on its size, the kiln was presumed to have been used for firing tinajas and botijas, although subsequent analysis now suggests it may have been a calcination kiln, perhaps for calcining gypsum (Van Beck 1991). A base of river cobbles was placed on sterile moro-moro in laying a foundation for the kiln, over which courses of adobe were added. No volcanic ash was encountered and no diagnostic artifacts were recovered in association with construction, which suggests a date range between 1600 and 1780. A cardboard matchbox from Germany and a bag containing coca leaves and a pocketknife were found in the uppermost soil zones.

A second kiln, thought to have been used in gypsum preparation, was investigated in unit 1150N/1033E (number 20 in Figure 6.10). This was a much smaller kiln than the more northerly one, and was badly destroyed. Excavation revealed several layers of carbon, ash, lime, and artifacts that indicated late nineteenth century usage of the kiln. A Peruvian coin dated 1863, a cigarette wrapper dated 1892 and a fragment of newspaper from the year 1900 provided strong temporal indicators.

The functional interpretation of the kiln as related to gypsum calcination was supported by the discovery of a circular stone grinding platform, Feature 9, which was uncovered during surface clearing east of the kiln. This feature, believed to be the basal platform for a milling stone, was constructed of stone slabs with a wooden post in the center. Although no

millstone was found, as they have been observed at other bodegas, it is presumed that this platform was used to pulverize calcinated gypsum after processing in the nearby kiln.

The last unit excavated at Chincha, 1159N/1034E (number 18 in Figure 6.10), reflected primarily pre-Colonial occupation. Beneath a thick lens of volcanic ash from Huaynaputina were found disarticulated human bone fragments, pottery, and leaves from the algarrobol (*Prosopis sp.*) tree. Very few Colonial artifacts were recovered from above the volcanic ash, reflecting limited use of this portion of the site other than that associated with the late-dating kilns.

Excavations at Yahuay

Excavations were conducted at Yahuay bodega during June 12-28, 1989. The site is located in the far northern part of the valley on the north bank of the Torata River, near its confluence with the Osmore River. Yahuay is reported to have been owned and operated by the Jesuits during the eighteenth century. A tiny chapel can be found at the southern end of the site that is dedicated to San Isidro, patron saint of farmers, and is still used occasionally today. Structurally, the site is in an excellent state of preservation.

Excavations at Yahuay began with the re-establishment of the ten-meter grid system used during 1987 testing of the site. Investigations began at the west end and progressed westward with the assistance of Susan deFrance and a crew of eight to ten crewmembers. A total of 13 units was excavated (Figure 6.13; Table 6.3). The tinaja kiln located in the extreme northeastern corner of the site was also excavated at this time under the supervision of Sara Van Beck, and is the subject of a separate study (1991).

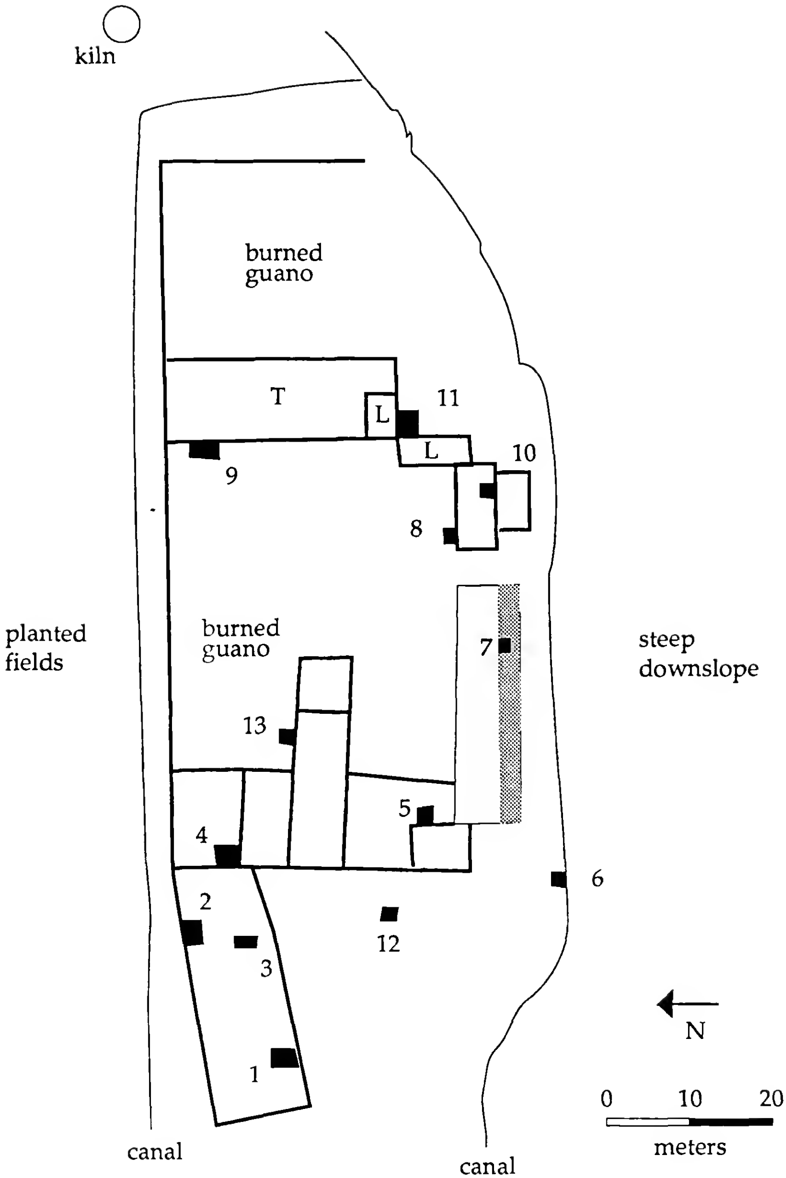

Figure 6.13: Map of Excavations at Yahuay, 1989
(numbers correspond to unit numbers in Table 6.3)

Table 6.3: Excavation Units at Yahuay, 1989

Unit #	Coordinates	Dimensions (m)	Location
1	1026N/937E	2.9 x 3.0	room with pillars
2	off grid	2.75 x 3.1	Arch 2, S side of room
3	off grid	0.75 x 2.85	Arch 10, N side of room
4	1024N/931E	3.0 x 1.0	central Arch room
5	1003N/945.5E	2.5N x 2.6	near chapel, disturbed
6	989N/933E	1.75 x 1.75	spout along S wall
7	990N/958.5E	1.5 x 1.5	at "patio" doorway
8	999 N/973.5E	1.5 x 3	in central corral
9	1024.5N/987E	3 x 1.5	E wall of central corral
10	993.5N/980.5E	1.6 x 2	room SW of lagar
11	1002N/990E	3 x 2.8	outside lagar
12	1006N/931E	2 x 2	W open space; sterile
13	1018.5N953E	1.5 x 3	ash deposit; suspended

Excavations began in the long, narrow room at the western end of the site which, due to its style of construction, came to be known as "the Archroom." Fifteen arches were present along the walls of three sides of the room that, according to local folklore, was used to house slaves. Each arch has a level platform as its base, and is constructed using a combination of adobes, clay, and rock. The crawlspace under the arches, which are slightly less than one meter from floor to ceiling, measures approximately two meters long by 180 centimeters wide. Two excavation units were placed off the grid to coincide with two of the arches (<u>Arch 2</u> and <u>Arch 10</u>), and one unit was placed in the central portion of the room (<u>1024N/931E</u>).

A posthole was evident in the lowest level of the central excavation (number 4 in Figure 6.13) that probably served to stabilize a roof support. Also worth noting is the fact that room construction required an initial levelling of the original ground surface, as evidenced in a greater depth to sterile in Arch 2 (number 2 in Figure 6.13) as opposed to Arch 10 (number 3 in Figure 6.13). The natural contour of the ground slope on the western side of the room had to have been built up prior to the level construction of the room (Figure 6.14).

Analyses of the excavated proveniences from all three of these units clearly suggest that this room was constructed and occupied during the Middle Period (1600-1780). Only five fragments of pottery that postdate that time period were recovered, and those came from the uppermost soil overlying the arch platforms. A honey-colored gun flint and lead baling seal were also recovered from the uppermost zone in Arch 10.

Material recovered from all three Archroom excavations strongly reflected a domestic, as opposed to industrial occupation. With the exception of miscellaneous iron artifacts, some botija sherds, and four fragments of

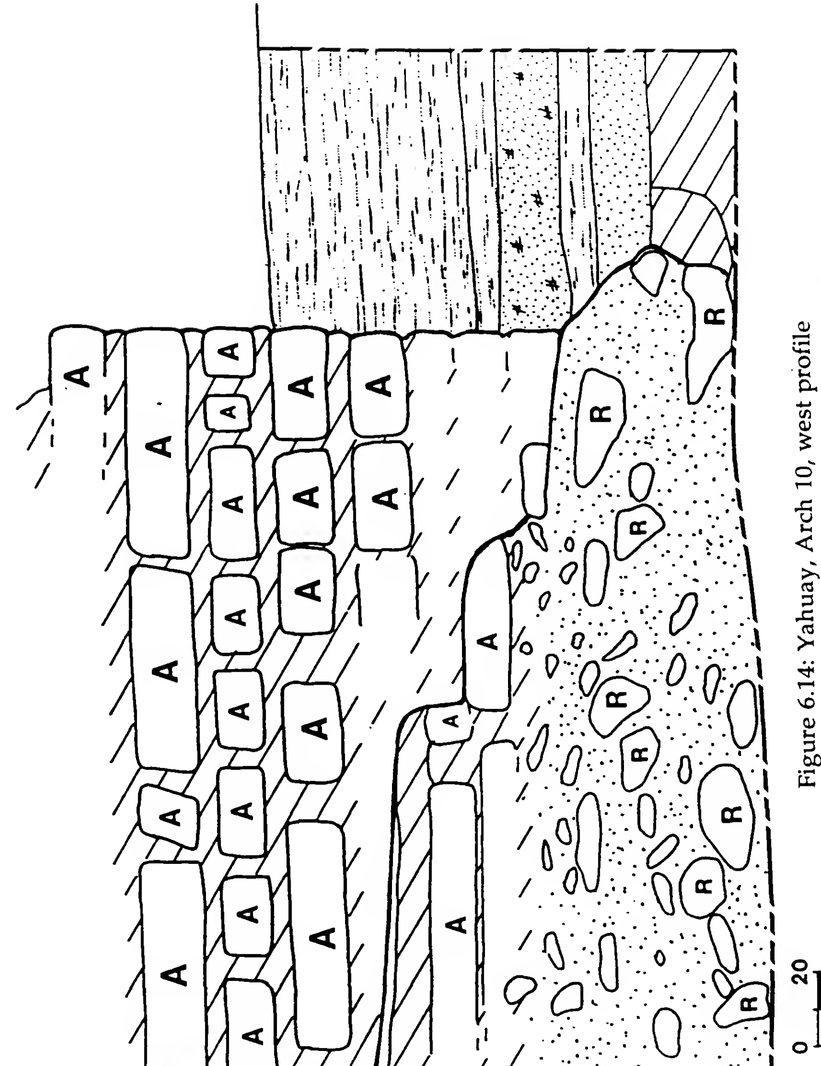

Figure 6.14: Yahuay, Arch 10, west profile

Mechero Ware, all the artifacts recovered from this room were of a domestic nature. These included plain, lead glazed, and tin-enameled pottery, glass, bone, and organic remains.

Given that the artifacts suggest a lifestyle above that of a mere bread-and-water existence, there is little reason to assume the room was used to house "slaves," as local folklore would have it. Another possible use--that of a tonel room, with barrels placed within each arch--is also unlikely, given that one of the arches was partially blocked by a wall and was inaccessible unless a tonel was placed within it prior to construction. In light of the historical mention of Jesuit occupation of the site, it seems best to suggest that the arches may have been used to house novices and/or priests.

Unit 1026N/937E (number 1 in Figure 6.13) was placed in the southwest corner of a small room directly adjacent to the Archroom, to the northeast. The room contained 12 low, square, concrete and limestone pillars that the present owner said were once used to support toneles, or wooden barrels. Excavation revealed that the pillars were set in a concrete floor of probable twentieth century construction. Two soil zones that underlay the floor contained ten Middle Period artifacts, including glass and pottery. These were associated with the construction and early use of the room.

Unit 1003N/945.5E (number 5 in Figure 6.13) was placed in the northwestern corner of the room adjacent to the chapel at Yahuay. This part of the site, as well as others we were to investigate along the site's southern edge, had been completely disturbed by treasure seekers. Treasure hunters, in Peru at least, are under the impression that the Spanish buried their gold in the corners of rooms (and apparently left the riches there when sites were abandoned), and for this reason many Colonial sites have huge holes in the floors of rooms. Zone A material in this particular unit continued for almost

one meter from ground surface to sterile; included within the deposit was a piece of newspaper dated Saturday, February 14, 1942. A plaster floor that at one time capped sterile soil was removed by the golddiggers on that Valentine's Day. Given the proximity of the room to the chapel, and the uniqueness of the plaster floor, the room may have served as home to a head priest, as a sacristy, or as an ornate secular room of some sort.

In the southwestern part of the site, unit 989N/933E (number 6 in Figure 6.13) was placed at the edge of an adobe wall that comprises the uppermost part of the retaining wall which protects this downsloping site margin from erosion. A square, rock-lined opening that appeared to be a drain was present in the adobe wall, and the unit was placed nearby in order to investigate. Excavations indicated that a stone-lined canal did run north-south toward the drain. Strata reflected eighteenth century construction and fill associated with wall stabilization, as well as accumulated debris from later centuries.

The calicanto stone paving that forms a patio along the south edge of the site was cleared of soil overburden as a courtesy to the resident owner and his family. After clearing, it was noted that a number of paving stones had been removed from in front of each of the three doors along that side of the building. Unit 990N/958.5E (number 7 in Figure 6.13) was placed in front of one of these doorways so that constructional and pre-patio depositional information could be gathered. Results indicate that the paving stones were removed prior to the excavation of a large hole, probably as part of the same looting attempts described above.

After excavating the unit to sterile, a few in situ calicanto paving stones were removed in order to cut the west wall back and expose a fresh profile. This new surface (Figure 6.15) was quite different from the original unit

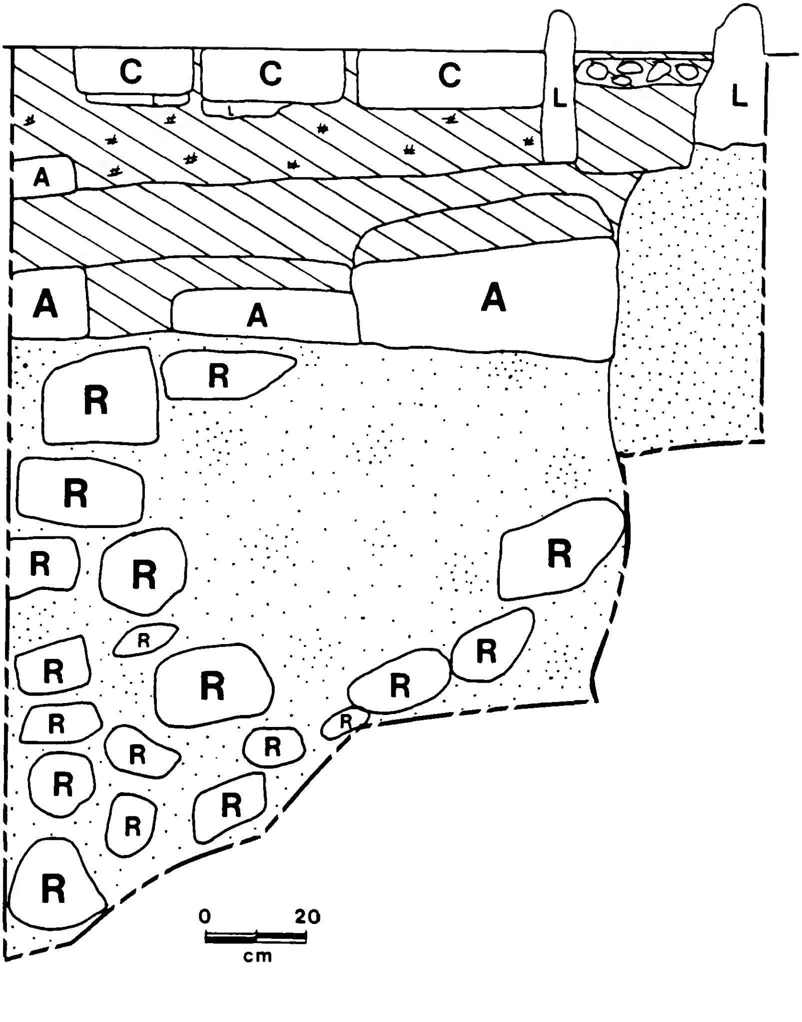

Figure 6.15: Yahuay, 990N/958.5E, west profile

profile, which was loose and semi-homogeneous. Medium-sized stones were found beneath the southern end of the paved platform, serving as a foundation and protection against erosion of the platform edge. Additional rocks supported the standing wall adjacent to the unit's north profile, forming a u-shaped rock foundation. This space appears to have been filled in with soil before being capped by two courses of adobes, and later the stone paving. This soil-filled trench appears in profile as a tunnel-like deposit, which may explain local folktales that contend Yahuay contains a number of underground passages and/or elaborate tomb entrances. Although the excavated soil from this unit seems disturbed and redeposited, eighteenth century contexts were not contaminated by the introduction of later material.

Excavation unit 999N/973.5E (number 8 in Figure 6.13) was placed in the large corral in the central part of the site, against a wall along the south side of the room. This location was chosen in order to secure domestic and architectural information, and to avoid a large section of the corral where, according to the owner, treasure seeking operations had taken place earlier this century. Excavations revealed that the adobe wall along the south profile was built atop sterile subsoil, probably prior to 1780, as no artifacts from this date or later were found in association with wall construction. Subsequent deposits consisted primarily of guano (104 centimeters deep), which contained a small amount of cultural material from the late eighteenth century and later, as dated by two fragments of Whiteware.

Unit 1018.5N/953E (number 13 in Figure 6.13) was located in the northwestern part of the same corral. A large hole was present directly north of the unit, which we attributed to treasure hunters, so this unit was meant to reveal undisturbed deposits. Unfortunately, the unit contained 100 percent burned guano ash, which caused all four profiles to slump constantly. No

artifacts were recovered from this attempted excavation, and the unit was suspended and backfilled without profiling. Another very disappointing unit was located at 1006N/931E (number 12 in Figure 6.13) in an open area on the extreme western side of the site. Sterile subsoil was encountered at 7 centimeters below surface, and no artifacts were recovered.

Unit 1024.5N/987E (number 9 in Figure 6.13) was located along the east wall of the large, central corral. The wall was built atop sterile subsoil, which occurred at 20 centimeters below surface. Building the tinaja room located immediately east of the adobe wall required the removal of a great deal of rocky substrata in order to set the tinajas in place. Artifacts associated with wall construction lacked any post-1780 time markers, which suggests construction prior to that time.

South of the large corral, unit 993.5N/980.5E (number 10 in Figure 6.13) was placed in a room used by the present occupants of the sites to keep chickens. Below a brick floor at surface, a wall was revealed that ran north-south through the unit. This wall was built and used sometime during the period 1600-1780, as no diagnostic artifacts from the later period were recovered from the soil zone associated with construction or from any of the related strata. The structure that this wall was part of may have served as a kitchen facility, since a wide variety of bone, shell, organic remains, and kitchen artifacts were recovered from the excavation. Additionally, the unit contained several earthenware pipe fragments, a green glass bead, and a clear glass rosary bead with a wire attachment.

The final unit excavated at Yahuay, 1002N/990E (number 11 in Figure 6.13), was located along the exterior wall of a large lagar on the eastern side of the site. Excavations revealed a rock and adobe platform constructed at the edge of the lagar, outside the southern wall of the adjacent tinaja room,

seemingly for access to the lagar. Artifacts recovered from the unit suggest construction took place prior to 1780. One round musket ball was found in the uppermost soil zone of the type that was common throughout the Colonial period and later (Nöel-Hume 1969:221).

Excavations at Estopacaje

Test excavations were conducted in 1989 at the mid-valley bodega known as Estopacaje (see Chapter 5). Documentary research conducted under the direction of Lorenzo Huertas (Lopez and Huertas 1990) indicated that a site by that name was involved in wine production during the sixteenth century. The archaeological plan was to continue the strategy of shovel testing and excavation at the site in order to uncover late sixteenth and early seventeenth century remains for comparison with the data from nearby Locumbilla. Although shovel tests strongly suggested a much later occupation of the site, three excavation units were completed during June 5-8, 1989, with the assistance of John Jones and a crew of four.

The central section of the site was the focus of all three units (Figure 6.16). Despite the fact that most of this area comprised an in-use corral for eight cows, two burros, and several chickens, shovel testing of the entire site revealed that the only real concentration of human remains at the site was also located there. It was hoped that our efforts to excavate below the animal guano in this area would be rewarded with the discovery of an undisturbed layer of early cultural material. Such was not the case.

Two units were excavated within the corral itself. A 2.5 x 2.0 meter unit (1016.5N/993E) was placed on the eastern side of the room abutting a wall. Two sub-guano zones were encountered in this excavation, the deepest of which (Zone C) was dated to the Republican Period by coins bearing dates

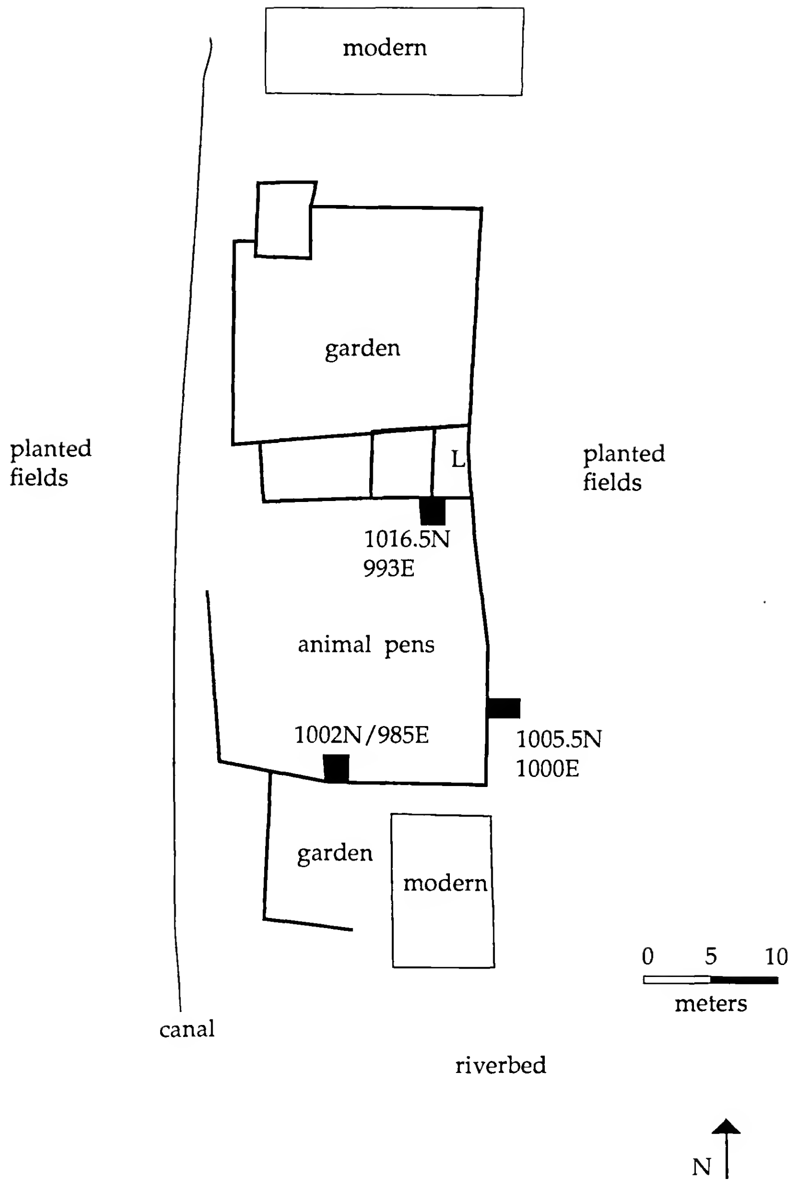

Figure 6.16: Map of Excavations at Estopacaje, 1989

from the 1860s. The second unit (1002N/985E), measuring 1.0 by 1.25 meters, contained four sub-guano zones that reflected both Colonial and Republican Period deposition. Of these deposits, the lowest-lying Zones (D and E) predated construction of the adjacent adobe wall and contained one fragment of Faience, and a number of Andean tin-enameled sherds.

A third unit measuring 1.5 meters north/south by three meters east/west, 1005.5N/997E, was placed outside the southeast wall of the corral structure, abutting an adobe wall that bore evidence of recent modification. As in 1002N/985E, Zone D was composed of medium brown sand with lime flecking and contained a large amount of cultural material. Zone D was dated to the late nineteenth century by a Peruvian coin from 1877. A builder's trench was encountered immediately above sterile soil which contained one sherd each of shell-edged Pearlware and Sevilla Delft-like majolica (McEwan 1988:249-251), which suggest a late eighteenth century date of construction for the adjacent adobe wall.

CHAPTER 7
EXCAVATED DATA

This chapter presents analysis results from each of the four excavated sites. Results are discussed individually for Locumbilla, Chincha, Yahuay, and Estopacaje, respectively, first according to the artifact groups represented at each, followed by a more specific discussion of artifacts within each category as they reflect Early, Middle, or Late Period use and deposition. Finally, the assemblages from each site are discussed as they reflect the known origin of certain artifacts, whether from the Andes, Europe, or elsewhere. These site-specific discussions are followed by a synthetic analysis of patterns perceived within the four assemblages. Data are interpreted as they reflect the level of Andean and non-Andean contributions to the material culture of Colonial Moquegua, and as a means of determining how and why the adaptations made by the residents of the bodegas underwent change through time.

Prior to the discussion of these results, Andean-made products noted within the assemblages of the four sites will be described. Both domestic and industrial artifacts were recovered that represent non-imported additions to a new, Colonial material culture assemblage in Moquegua. Andean-made domestic contributions include Tin-Enameled, Lead-Glazed, and Coarse Earthenware ceramics, which reflect a great deal of Andean and European trait admixture in the combination of European formal attributes with Andean paste types. This pottery far outnumbers imported wares until the latter part of the eighteenth century. Industrial artifacts, not including tinajas

and botijas (discussed in Chapter 4) that are the ubiquitous symbols of the industry, are also described.

Andean-Made Domestic and Industrial Artifacts

Domestic Artifacts

Rice (1990:25-34) has identified two tin-enameled ceramic groups in Moquegua, the Escapalaque group and the Mas Alla group, that have been classified within the broader, more inclusive category of Contisuyu Tin-Enameled Ware. A third group, Mojinete Glazed-Enameled Ware, includes pottery that combines lead glazing on one side with tin-enameling on the other (Rice 1990:34-38). While Rice's study should be consulted as the original and definitive source on the subject, brief descriptions of these three ceramic groups, summarized from Rice's manuscript, are included below.

Mas Alla Polychrome (Figure 7.1) is, as we shall see, the most common tin-enameled pottery found at the excavated sites, and can be identified by the presence of green and purple-to-black decoration on a light, opaque, tin-enameled background that varies from cream to pale bluish green in color. Decorative motifs are simple and include floral or leaf-like designs as central elements, with interlocking guilloches sometimes painted around the brim of plates. Enamel covers the entire interior and exterior surfaces of vessels, including the bottom of foot rings of plates. The paste is fine-grained and dense, typically reddish-brown in color, with occasional calcite-like inclusions (less than 0.5 mm in diameter) and small voids. Plates and bowls are the most common vessel form, although miscellaneous examples of storage jars, cups, handles, and a candleholder have also been noted. Mas Alla tin-

Figure 7.1: Mas Alla Polychrome Tin-Enameled Pottery

Mas Alla Polychrome rims with guilloches - clockwise from top right
FS# 6-955;
FS# 4-77;
FS# 23-966;
FS# 27-39;
FS# 19-1520;
FS# 19-1555.

Mas Alla Polychrome sherds - clockwise from top right:
FS# 19-1565;
FS# 19-1331;
FS# 19-1493;
FS# 19-1411;
FS# 19- 1554;
FS# 19-1138;
FS# 4-82;
FS# 19-1475;
FS# 19-1624;
center, FS# 4-34.


cm
in


1138
cm
in

enameled pottery appears to have first been produced during the Middle Period.

Escapalaque Polychrome can be distinguished by black and green painted decoration on a yellow tin-enameled background (Figure 7.2). This yellow enamel usually provides better coverage of the reddish brown paste of Contisuyu wares than can be said of the Mas Alla enamel. Beneath the surface enameling, however, the paste of Escapalaque vessels shares the same pitted, granular qualities in paste texture. Decorative motifs include leaf-like elements, black outlining, plumes, meanders and dots. Escapalaque vessels are primarily bowls and plates, with one example of a brimmed plate and one tile fragment recovered.

Tin-Enameled/Lead-Glazed pottery is treated herein as a single entity. Classified by Rice (1990:34-38) as Mojinete Glazed-Enameled, this ware includes three types that have distinctive combinations of surface treatments. Paste is similar to the reddish-brown paste of the Contisuyu Tin-Enameled Ware. Rilling on the interior of some sherds indicates that at least some of this pottery was wheel thrown. Vessel fragments indicate that a range of forms were made, including cylindrical jars, small bowls and plates, pitchers, and cups or pedestalled vases.

Lead-Glazed Coarse Earthenwares were also recovered that share paste characteristics with the tin-enameled wares and also appear to have been of Andean manufacture. At other Spanish Colonial sites in the New World, Lead-Glazed pottery was commonly imported for use, as discussed in Chapters 4 and 5, but known types are virtually nonexistent in Moquegua. Instead, by virtue of paste similarities, a Peruvian industry of Lead-Glazed pottery production seems to have arisen alongside that producing the tin-enameled wares. Examples recovered in Moquegua consist largely of small

Figure 7.2: Escapalaque Polychrome Tin-Enameled Pottery

Escapalaque Polychrome Rims - clockwise from top right:
FS# 19-0;
FS# 4-953;
FS# 4-185;
FS# 11-959;
FS# 4-80;
FS# 8-957;
center, FS# 11-959.

Escapalaque Polychrome Sherds - clockwise from top right:
FS# 19-1464;
FS# 19-1520;
FS# 19-1486;
FS# 19-1623;
FS# 44-963;
FS# 19-1555;
center, FS# 8-957

bowl fragments with green, brown, or clear lead glazing over a reddish brown coarse earthenware paste. Olla forms have also been recovered, some of which bear evidence of having been used over a fire. The most common has been called Cuy Lead-Glazed, named for the addition of glazing to Cuy Plain vessels, which are discussed below.

Coarse Earthenwares make up the largest part of the assemblages of all the excavated sites. This category includes plain and occasionally decorated earthenware pottery that was used in cooking and other kitchen-related activities. Cuy Plain pottery (see Appendix C for a Type Description, and Rice 1990:15-16) consists of rather carelessly made vessels that most often bear exterior charring that suggests primary use over a fire. Cuy Plain (Figure 7.3) pottery is handmade of a coarse reddish paste that is slightly lighter on the interior and typically heavily sooted on the exterior. Surfaces are usually uneven and poorly smoothed, with abundant mineral inclusions of between 1-3 mm in size visible throughout. Cuy Plain pots are almost always undecorated, although one strap handle fragment was recovered that had reed punctations. As stated above, a number of Lead-Glazed examples have been recovered in olla form. While ollas are the most common form, Cuy Plain vessels also occur as tostadors and pitchers. Tostadors are bun-shaped, open-ended vessels with a handle on top that were, and are still, used for toasting or parching corn and grain. Cuy Plain pottery appears to have been of Colonial origin, with a few examples from Early contexts indicating it was a colono-ware produced beginning in the late sixteenth century.

Additional coarse earthenwares found in Moquegua include both plain and decorated wares. Pastes for the plain wares differ from that of Cuy Plain, with a range of variation that requires and merits a separate study. A small percentage of this pottery exhibits a combination of prehispanic and European

Figure 7.3: Cuy Plain Pottery

Top Photo: Tostador from surface collection at Sorsano bodega, FS# 18-963

Bottom Photo: Bowl from surface collection at Santo Domingo bodega, FS# 11-959 (vessel is 20 cm tall and 24 cm wide)

characteristics, including foot rings. The majority occur in small unrestricted bowl forms that were probably used in both cooking and serving (Figure 7.4). Painted pottery is also present in bowl form, the most common having red painted bands, corn stalks, or bird designs on the interior. Small Red-Slipped vessels occur that are similar to those found at Spanish Colonial sites in Florida and the Caribbean (Smith 1986:55; Deagan 1987:43-44), although pastes differ at each location. Forms are hard to distinguish for the Red-Slipped pottery in Moquegua due to the small size of recovered sherds, but they seem to represent diminutive bowls, cups, or vases.

Finally, a number of prehispanic sherds were recovered from Colonial contexts at the wineries. While a few of these include fiber-tempered or Tiwanaku vessel fragments that have been interpreted as present through redeposition, a number of Late Horizon, Inka painted sherds from Locumbilla appear to have been in use at the site. Numerous examples of beautifully painted Inka polychromes were found that were probably manufactured in or near Cusco (Rice 1990:12). This pottery has a paste that is typically reddish orange in color, with fine-line decoration painted on a light brown- or cream-slipped background. Many fragments of this pottery were recovered from the kiln excavations at Locumbilla (Van Beck 1991) and seem to reflect redeposition; the Inkan wares reported herein appear to have been in use, as they were recovered from domestic contexts. Stanish (1989) has reported the presence of Inka ceramics in the northernmost and highest tributary of the Osmore drainage in the Otora Valley. Inka pottery at Locumbilla may reflect Spanish-Indian intermarriage, and the use of a high status replacement for scarce imports. On the other hand, the presence of this pottery may be indicative of the presence of a kuraka at the site, one who may have served as

Figure 7.4: Coarse Earthenware

Coarse Earthenware Rims and Bases - clockwise from top right:

FS# 7-956;
FS# 5-954;
FS# 6-955;
FS# 6-955;
FS# 5-954;
FS# 2-951;
center, FS# 2-951.

Red Painted Coarse Earthenwares - clockwise from top right:

FS# 19-1205;
FS# 19-1483;
FS# 19-1148;
FS# 19-1464;
FS# 19-1464;
FS# 19-1491;
FS# 19-1636;
FS# 19-1636;
central, FS# 19-1205.


cm
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an overseer for early industrial operations at the bodega and, with newfound opportunity for upward mobility, had access to such goods.

Industrial Artifacts

Industrial Artifacts made up a large part of the assemblage at Locumbilla, accounting for over 18% of the site assemblage, while few other bodegas contained elements from this group. The high percentage at Locumbilla is reflected primarily in the presence of Mechero Plain pottery, which was found only in small quantities at the other excavated wineries. Mechero Plain (Figure 7.5) is known from a single vessel form, a deep, wide-mouthed jar with vertical strap handles (see Appendix D for a Type Description). Based on measurements taken from a partial reconstruction, Mechero Plain vessels have a diameter at the mouth of 43 cm, and an estimated body height of 62-72 cm; maximum body diameter is estimated at 52-55 cm (Rice 1990:9). Paste color for these vessels, which were manufactured by coiling, varies from dark reddish brown to reddish yellow. Flecks of mica and other mineral inclusions are commonly visible within the very friable paste.

Although Mechero Plain pottery appears to have filled an industrial function, its exact use is unknown. Interestingly, it has only been found in large quantities at Locumbilla, where the buried kiln was located (Van Beck 1991). Based on microbotanical analysis of the heavily encrusted burnt residue found inside vessel fragments, Jones (1990) has suggested that Mechero Plain vessels were sealed with pine pitch, and may have been used in boiling plant products, such as sugar cane or banana leaves. Alternatively, it may be that the vessels were used in processing pine pitch, or brea, which was imported from Mexico and used to seal botijas.

Figure 7.5: Industrial Artifacts

<u>Top Photo</u> - clockwise from top right:

mechero plain rim, FS# 19-1175;
mechero plain base, FS# 19-1472;
pottery-making scraper of botija fragment, FS# 19-1571;
botija necks, FS# 19-1577, FS# 19-1424;
botija plugs made of gourd, all FS# 19-1574.

<u>Bottom Photo</u> - clockwise from top right:

(all with same paste as botijas)
handle fragment, FS# 19-1558;
rims, FS# 19-1180;
jar neck, FS# 19-1536;
large rim, FS# 19-1574
handle fragment, FS# 19-1136.

In addition to botija and tinaja fragments and broken Mechero Plain vessels, a number of other artifacts thought to have been used in various industrial contexts were also found. Most of these were probably produced locally, with the exception of corks, wooden barrel fragments, and wooden stoppers, which were imported. Locally-produced, industry-related artifacts include circular fragments of gourd (Lagenaria siceraria) that were apparently shaped as plugs for botijas (Figure 7.5). Some plugs were also recovered that appear to have been made of a lime-like mixture that was poured to fit the botija mouth prior to hardening.

Several unglazed earthenware forms were found in small quantities at Locumbilla. These are primarily bowls and large loop handle fragments, although a few examples of large wide-mouthed jars were also noted (Figure 7.5; Rice 1990:12). They are thought to be industrially-related as they appear to have been manufactured of a coarse reddish brown paste similar to that used in making botijas. No indication of vessel function can be given at this time. A few fragments of large circular rings (6.5 to 9.5 cm tall, 18 cm diameter) that were also made of this same botija-like paste were recovered from the non-kiln excavations and waster deposits at Locumbilla. These have been interpreted as "setters" used in stacking unfired botijas in the kiln during firing.

Excavated Data from Locumbilla

From the 32 units excavated at Locumbilla a total of 273 proveniences was included in analysis and interpretation (Appendix A), with 9104 recovered artifacts representing occupation during Early, Middle, and Late Periods. Material from sixteenth century contexts accounted for 5.4% of the

site assemblage; artifacts from Middle Period proveniences reflected 50.3% of the total recovered, and Late contexts contained 44.2% of the artifacts reported herein.

Kitchen artifacts accounted for 78.8% of the overall assemblage at Locumbilla (Table 7.1). Within this group, Coarse Earthenware comprised 58.6% of the total, followed by Glass (7%), Other European Pottery (5.6%), and Tin-Enameled wares (5.2%). Lead-Glazed wares were next at 2.1%, followed by Stoneware/Porcelain and Table Utensils, each accounting for less than one percent of the total. Non-kitchen artifacts made up 21.2% of the site total, and reflect the large number of botija fragments, lime and gourd botija plugs, kiln furniture, and Mechero Plain sherds associated with industrial activities at Locumbilla (see Chapter 6). Industrial Items of this kind account for 18.6% of the site total. Other non-kitchen artifact groups, including Wood Construction, Clothing, Personal, Activities, Unidentified Metal, Weaponry, and Horse Hardware, each accounted for one percent or less of the total site assemblage.

In addition to these data, it is useful to illustrate the breakdown of specific artifacts within each of the groups, which allows for a better understanding of Andean and European contributions to the assemblage, and changes that occurred in Colonial adaptations through time. Locumbilla provides the only data representing sixteenth century occupation in Moquegua, and while small, the Early Period sample is of great value in addressing valley cultural development and change. Artifact groups represented during the Early occupation reflect both domestic and industrial activities, and include materials from the Kitchen, Clothing, Sewing, Industrial Items (not including botija and tinaja fragments), and Unidentified Metal groups. Weighed materials from the Masonry Construction category,

Table 7.1: Locumbilla Artifacts by Group and Time Period

Category	Pre-1600		1600-1780		1780-1900		Percent of Total
	#	%	#	%	#	%	%
KITCHEN GROUP							
Tin-Enameled Pottery	4	0.8	178	3.9	296	7.3	5.2
Lead-Glazed Pottery	0	0	59	1.3	136	3.4	2.1
Coarse Earthenware	479	96.4	2579	56.4	2277	56.5	58.6
Stoneware, Porcelain	0	0	3	0.07	11	0.4	0.15
Other Euro. Pottery	0	0	0	0	508	12.6	5.6
Glass	1	0.2	77	1.7	559	13.9	7.0
Tableware	1	0.2	0	0	10	0.2	0.1
Subtotal	485	97.6	2896	63.3	3797	94.3	78.8
WOOD CONSTRUCTION	0	0	4	0.1	46	1.1	0.6
CLOTHING	1	0.2	27	0.6	33	0.8	0.7
PERSONAL	0	0	4	0.1	9	0.2	0.1
ACTIVITES	1	0.2	5	0.1	6	0.1	0.1
INDUSTRIAL ITEMS	9	1.8	1601	35.0	85	2.1	18.6
UNIDENTIFIED METAL	1	0.2	39	0.8	47	1.2	1.0
WEAPONRY	0	0	0	0	2	0.05	0.02
HORSE HARDWARE	0	0	0	0	6	0.1	0.06
Subtotal	12	2.4	1680	36.6	234	5.7	21.2
TOTAL	497	5.4	4576	50.3	4031	44.2	99.9

Industrial Substances, as well as Fauna, Shell, Tinaja, and Botija were also recovered from Early Period contexts.

As seen in Table 7.2, the first three tin-enameled subcategories represent Andean-made wares as classified and described by Rice (1990), and these wares were apparently not in use until the Middle Period. Panamanian tin-enameled pottery was the most frequent within the category, although we can see, in only one fragment of Tin-Enameled/Lead-Glazed pottery, that the Andean ceramic industry was beginning to contribute to the assemblage at an early date. Mexican Valle Ware, Faience, and Delft were present in small quantities, primarily as Late Period introductions. The number of all tin-enameled wares increases through time, although due to the introduction of new products during the Late Period, they eventually constitute a smaller overall percentage within the assemblage.

In the Coarse Earthenware category, we see that Cuy Plain pottery was in production during the sixteenth century, and increased steadily in use throughout the Colonial Period. Cuy Lead-Glazed pottery appears to have been developed somewhat later than the plain variety, and it too increases in frequency through time. Plain, Painted, and Red Slipped wares all appear to have reached a zenith during the Middle Period. Only two fragments of punctated pottery were recovered, the only sherds of their kind encountered in the valley, which suggests this type of decoration was very uncommon.

Overall trends through time show an increase in the use of Tin-Enameled wares and Glass, with each reflecting limited presence prior to 1600. The same can be said of artifacts reflecting the Clothing, Activities, and Unidentified Metal groups. Lead-Glazed Pottery and Stoneware/Porcelain increase from the Middle to Late Periods, as do artifacts representing the Wood Construction (Figure 7.6) and Personal groups. In addition to Other

Table 7.2: Artifacts Recovered from Locumbilla

	Early	Middle	Late
Tin-Enameled Pottery			
Escapalaque Polychrome	0	19	22
Mas Alla Polychrome	0	89	141
Tin-Enameled/Lead-Glazed	1	14	23
Panamanian Polychrome	2	20	40
Valle Ware	0	1	2
Faience	0	0	6
Delft	0	0	1
Unidentified	1	35	61
Lead-Glazed Coarse Earthenware			
Storage Jar	0	21	14
Lead-Glazed	0	5	46
Cuy Lead-Glazed	0	33	76
Coarse Earthenware			
Cuy Plain	11	883	1452
Plain Coarse Earthenware	341	1449	761
Painted Coarse Earthenware	126	205	34
Red Slipped	1	40	30
punctated	0	2	0
Stoneware, Porcelain			
Brown Saltglazed Stoneware	0	2	2
Porcelain	0	1	9
Other European Pottery			
Pearlware, plain			65
Whiteware, plain			151
Annularware			44
Hand Painted Pearlware			15
Transfer printed Pearlware			26
Transfer printed Whiteware			90
Sponged/Painted			6
Semiporcelain			18
Shell-edged Pearlware			9
Mocha			1

Table 7.2 -- continued

	Early	Middle	Late
Ironstone			78
Creamware			3
Unidentified			1
Glass			
green	0	8	89
olive	0	31	212
clear	1	34	151
amethyst	0	0	14
blue	0	1	2
brown	0	0	91
other, uid	0	2	0
clear/blue rim	0	1	0
Tableware			
knife	0	0	5
spoon, wooden	1	0	0
fork	0	0	1
wooden handle	0	0	2
iron kettle fragment	0	0	1
pewter handle	0	0	1
Wood Construction			
nails, unidentified		2	3
spikes, cut		0	4
u-shaped fastener		0	2
hinge		0	2
furniture hardware		0	1
other, uid		0	3
wrought nails		0	9
wire nails		0	15
cut iron nail		0	2
wrought spike		2	1
iron railroad spike		0	2
wooden window dowel		0	1
wire spike		0	1
Masonry Construction			
brick	465g	0	0
painted plaster	0	6g	13g

Table 7.2 -- continued

	Early	Middle	Late
Clothing, Textile, Adornment			
fabric	1	20	14
cordage	0	0	2
bead	0	1	2
jewelry	0	0	2
button	0	3	10
buckle	0	2	0
shoe leather	0	0	2
hook and eye	0	0	1
canvas oil painting	0	1	0
Personal			
coin, Spanish	0	1	4
comb, wood	0	0	1
key	0	0	1
pipe, earthenware	0	2	0
matchbox, Swedish	0	0	1
unidentified object fragment	0	watch part, 1	carved handle, 1
leather knife sheath	0	0	1
Activities			
toys	0	0	doll parts, 3
sewing	whorl, 1	brass pins, 3	4
gaming disc	0	2	0
Industrial items, tools			
corks	0	0	2
wooden stopper	0	0	3
kiln furniture	0	3	0
baling seal	0	2	1
botija plugs	1	4	0
mechero ware	8	1592	79
Byproducts, Industrial substances, Processing materials			
scoria	0	45794g	33085g
lime	251g	33226g	547g
lead	0	0	215g
pitch	0	160g	0
slag	0	0	22g

Table 7.2 -- continued

	Early	Middle	Late
Fauna	5835g	31094g	25701g
Shell	13g	126g	2010g
Unidentified Metal Fragments			
iron fragment	1	31	10
iron sheet	0	0	21
iron object	0	0	2
wire	0	0	4
iron strap	0	2	6
copper fragment	0	1	0
brass fragment	0	2	1
copper fragment	0	1	0
copper sheet	0	1	2
ring, metal alloy	0	0	1
brass disc	0	1	0
Tinaja	70g	93933g	17464g
Botija	5139g	771073g	58852g
Miscellaneous Substances			
sulphur	0	0	3g
coal	0	0	1g
unidentified, burned	0	39g	0
clay	0	973g	398g
Weaponry			
shell casing, brass	0	0	2
Horse Hardware			
iron shoe	0	0	2
iron nail	0	0	3
iron saddle loop	0	0	1

Figure 7.6: Wood Construction and Sewing Artifacts

Wood Construction Materials - clockwise from top right:

nail, FS# 4-23;
ornamental hinge fragment, FS# 19-1107;
iron spike, FS# 4-24;
ornamental hinge fragment, FS# 19-1107;
iron stock lock; FS# 4-23;
iron plate lock, FS# 27-47;
iron hinge fragment, FS# 19-1108;
center, metal alloy ornamental door hardware, FS# 4-24.

Sewing Artifacts - clockwise from top right:

brass pins, left to right, FS# 19-1131, FS# 19-1105, FS# 19-1220;
brass thimbles, left to right, FS# 19-1331, FS# 19-1535;
brass spools, both FS# 19-1464;
iron scissors, left to right, FS# 19-1331, FS# 1-950, FS# 19-1550

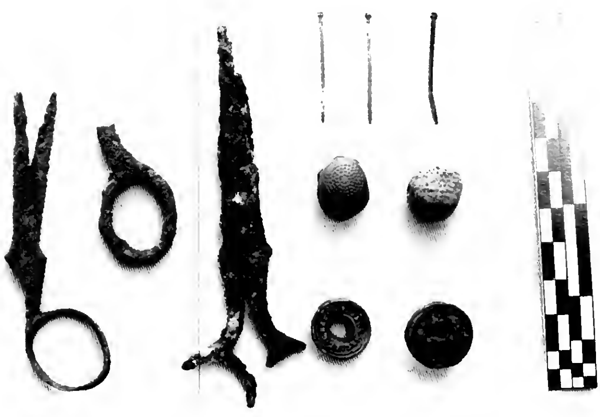

Table 7.3: Origin of Artifacts from Locumbilla

Category	Peru	Europe	Panama	Mexico
Tin-Enameled Pottery	317	7	62	3
Lead-Glazed Pottery	169	4		
Coarse Earthenware	5264			
Stoneware, Porcelain		14		
Other European Pottery		507		
Glass		302		
Tableware				
Wood Construction	0	29		
Clothing	2	19		
Personal, Coins	5	6		
Activities	3	9		
Industrial Items, Tools	1687	8		
Unidentified Metal				
Weaponry				
Horse Hardware				
TOTAL	7447	905	62	3
PERCENT	88.5%	10.7%	0.7%	0.03%

European Pottery, Weaponry and Horse Hardware begin to appear after 1778 during the Late Period.

Table 7.3 provides a breakdown of the distribution of artifacts by country of origin for those items that could be so interpreted. Andean influences are particularly evident with respect to the Kitchen Group, with the exception of Glass and Other European Pottery, which are most prevalent during the Late Period. Andean-made Tin-Enameled and Lead-Glazed Pottery constituted the bulk of their respective categories.

Excavated Data from Chincha

A total of 178 proveniences was used in the analysis and interpretation of results from Chincha bodega (Appendix A). Recovered artifacts numbered 2717 and represented Colonial occupation during the Middle and Late Periods. Of the total, 28.3% of the artifacts came from Middle Period contexts, while 71.7% of the assemblage was recovered from Late deposits. Pre-Colonial proveniences were also encountered at Chincha (as discussed in Chapter 7), but were removed from the present stage of analysis.

Kitchen artifacts accounted for 90.4% of the Colonial assemblage at Chincha (Table 7.4). Within this group, Coarse Earthenware accounted for 50%, followed by Other European Pottery (17.3%) and Glass (14.5%). Tin-Enameled Pottery made up 5.4% of the total, followed by Lead-Glazed (2.4%), Stoneware/Porcelain (0.4%), and Tableware (0.4%). Trends through time show an increase in Lead-Glazed Pottery, Glass, and Stoneware/Porcelain in association with the introduction of Other European Pottery during the Late Period. The incidence of Coarse Earthenwares dropped by more than half as the use of these other wares increased.

Table 7.4: Chincha Artifacts by Group and Time Period

Category	Pre-1600		1600-1780		1780-1900		Percent of Total
	#	%	#	%	#	%	%
KITCHEN GROUP							
Tin-Enameled Pottery	0	0	69	9.0	78	4.0	5.4
Lead-Glazed Pottery	0	0	6	0.8	59	3.0	2.4
Coarse Earthenware	0	0	609	79.2	750	38.5	50.0
Stoneware, Porcelain	0	0	0	0	12	0.6	0.4
Other European Pottery	0	0	0	0	469	24.0	17.3
Glass	0	0	13	1.7	381	19.5	14.5
Tableware	0	0	4	0.5	7	0.4	0.4
Subtotal	0	0	701	91.2	1756	90.0	90.4
WOOD CONSTRUCTION	0	0	4	0.5	52	2.6	2.0
CLOTHING	0	0	40	5.0	51	2.6	3.3
PERSONAL	0	0	0	0	16	0.8	0.6
ACTIVITIES	0	0	1	0.1	6	0.7	0.3
INDUSTRIAL ITEMS	0	0	16	2.0	13	0.6	1.1
UNIDENTIFIED METAL	0	0	7	0.9	45	2.3	1.9
WEAPONRY	0	0	0	0	2	0.1	0.1
HORSE HARDWARE	0	0	0	0	7	0.4	0.3
Subtotal	0	0	68	8.8	192	10.0	9.6
TOTAL	0	0	769	28.3	1948	71.7	100.0

Non-kitchen artifacts made up 9.6% of the artifacts recovered from Chincha, with no group accounting for more than 3.3% of the total. Trends through time show that Personal, Weaponry, and Horse Hardware categories were present only during the Late Period. Increases from the Middle Period to the Late are evident with regard to Wood Construction materials, Activities, and Unidentified Metal, all of which reflect the influx of European goods to the valley after 1778.

Table 7.5 presents a breakdown of the specific artifacts that represent each of the groups, which allows for a better understanding of Andean and European influences on the material assemblage. With regard to Tin-Enameled pottery, Andean-made wares outnumbered imported products during both the Middle and Late Periods. Panamanian pottery was the most prevalent imported ware, showing a slight increase in frequency during the Late Period.

Other Kitchen group members, including Lead-Glazed Coarse Earthenware, Porcelain/Stoneware, and Glass, all show marked increases in association with the introduction of Other European Pottery during the Late Period. The high percentages among the latter categories (Other European Pottery and especially Glass) parallels that seen at the late-dating site of Estopacaje (discussed below), a pattern that may correlate with primarily late Colonial site occupation.

Despite a drop in the overall percentage of Coarse Earthenwares during the Late Period at Chincha, two interesting observations can be made within that group. As seen in Table 7.5, only plain coarse earthenwares reflect a significant decrease in frequency during the Late Period; the number of Cuy Plain sherds doubles through time. Why this is so will require additional research, although given similar patterning at Locumbilla and Estopacaje, it

Table 7.5: Artifacts Recovered from Chincha

	Middle	Late
Tin-Enameled Pottery		
Escapalaque Polychrome	5	16
Mas Alla Polychrome	28	23
Tin-Enameled/Lead-Glazed	10	15
Panamanian Polychrome	11	14
Valle Ware	3	0
Sevilla Ware	2	0
Faience	1	0
Unidentified	9	10
Lead-Glazed Coarse Earthenware		
Storage Jar	1	1
Lead-Glazed	3	35
Cuy Lead-Glazed	2	23
Coarse Earthenware		
Cuy Plain	232	474
Plain Coarse Earthenware	350	254
Painted Coarse Earthenware	6	6
Red Slipped	21	16
Stoneware, Porcelain		
Brown Saltglazed Stoneware	0	4
Porcelain	0	7
Stoneware	0	1
Other European Pottery		
Pearlware, plain		4
Whiteware, plain		54
Annularware		2
Hand Painted Pearlware		8
Hand Painted Whiteware		12
Transfer printed Whiteware		120
Sponged/Painted		5
Semiporcelain		43
Shell-edged Pearlware		2
Ironstone		218
Creamware		1

Table 7. 5 -- continued

	Middle	Late
Glass		
green	2	62
olive	5	156
clear	6	134
amethyst	0	9
blue	0	3
brown	0	16
adorno	0	1
Tableware		
wooden handle	3	0
iron kettle fragment	0	5
bone handle	0	2
wooden tureen fragment	1	0
Wood Construction		
nails, unidentified	1	15
spikes, cut	1	3
lock fragment	0	1
other, uid	2	6
wrought nails	0	2
wire nails	0	12
door fragment	0	1
cut iron nail	0	7
cut brass nail	0	1
wrought copper nail	0	2
wrought spike	0	1
door appendage	0	1
Masonry Construction		
mortar	7g	10g
brick	30g	202g
cut limestone	0	20000g
Clothing, Textile, Adornment		
fabric	26	22
cordage	7	6
bead	3	0
button	2	15
buckle, brass	0	1
shoe leather	2	11

Table 7.5 -- continued

	Middle	Late
belt	0	2
hat	0	1
hook and eye	0	1
Personal		
coin	0	4
key	0	1
matches	0	3
cigarette pack fragment	0	5
metal box	0	1
coca bag	0	1
pocketknife	0	1
Activities		
sewing (2 threadballs, 3 wooden spools)	0	5
gaming disc	earthenware, 1	Cuy Lead Glaze, 1
Industrial items, tools		
barrel parts	15	1
corks	0	3
wooden stopper	0	6
tools	0	2
grinding apparatus, copper	0	1
mechero ware	1	0
Byproducts, Industrial substances, Processing materials		
scoria	0	356g
lime	3070g	21896g
lead	0	38g
Fauna	69833g	25466g
human bone	57g	0
Shell	4g	251g
Unidentified Metal Fragments		
iron fragment	4	13
iron sheet	0	4
iron object	0	4

Table 7. 5 -- continued

	Middle	Late
wire	0	4
iron strap	0	11
copper fragment	1	0
copper loop	0	1
brass fragment	0	3
copper fragment	0	2
copper sheet	1	2
lead fragment	1	0
lead sheet	0	1
Tinaja	5822g	9699g
Botija	404g	561g
Miscellaneous Substances		
sulphur	0	1g
coal	0	32g
mica	0	6g
Weaponry		
shell casing, brass	0	1
flint, honey-colored	0	1
Horse Hardware		
iron shoe	0	6
iron bit	0	1

Figure 7.7: Botanicals

Botanicals, Andean - clockwise from top right:

potatoes, FS# 4-168 (large) and FS# 4-166 (small);
cocochilenos, FS# 4-92 (top) and FS# 4-66 (bottom);
pepper, FS# 4-9;
corn, FS# 4-168;
gourd, FS# 4-92;
squash seeds, FS# 4-168.

Botanicals, Introduced - clockwise from top right:

figs, FS# 4-9;
olive pits, FS# 4-168;
peach pits, FS# 4-168;
grape seeds, FS# 4-91.


cm
in

Table 7.6: Origin of Artifacts from Chincha

Category	Peru	Europe	Panama	Cuba	Mexico
Tin-Enameled Pottery	84	3	25		3
Lead-Glazed Pottery	64	1			
Coarse Earthenware	1359				
Stoneware, Porcelain		12			
Other European Pottery		469			
Glass		394			
Tableware					
Wood Construction	1	23			
Clothing	6	13			
Personal, Coins	8	6		2	
Activities	3				
Industrial Items, Tools	2	25			
Unidentified Metal					
Weaponry		1			
Horse Hardware					
TOTAL	1527	947	25	2	3
PERCENT	61.0%	37.8%	1.0%	0.08%	0.1%

could be that Cuy Plain became a more popular cooking ware than plain earthenware during the latter part of the Colonial Period in Moquegua. The frequency of decorated sherds, although small to begin with, remains relatively unchanged through time at Chincha.

In general, a number of intra-group increases can be seen within Late Period contexts at Chincha. Most categories reflect marked increases in both number and diversity. The Clothing Group includes beads (one shell, one drilled stone, and one blue glass seed bead), buttons (9 white glass, 1 brass shank, and one copper alloy shank), and a brass buckle. Personal artifacts include cardboard matchboxes from Sweden and Germany, a coca bag, a folding pocketknife, and several fragments of late-nineteenth century cigarette packs from Cuba and Peru (pictured in Figure 7.8). Unidentified Metal Fragments increase a great deal during the Late Period, again reflecting the influx of imported goods after comercio libre was declared.

With respect to the origin of the artifacts recovered from Chincha, 61% of those whose origin could be ascertained were found to be Andean (Table 7.6). European products accounted for 37.8%, followed by Panamanian tin-enameled pottery (1%), Mexican Valle Ware (0.1%), and evidence of Cuban cigarette importation (0.08%). Kitchen Group artifacts were largely of Andean manufacture prior to trade law relaxations and the importation of inexpensive, mass-produced European products.

Excavated Data from Yahuay

From the 13 units excavated at Yahuay a total of 61 proveniences was used in analysis and interpretation of the site (Appendix A). Recovered artifacts numbered 1206 and represented occupation during the Middle and Late Periods; no sixteenth century habitation at the site appears to have

occurred. Of the total, 51% of the artifacts came from Middle Period contexts, while 49% of the material was Late-dating.

At Yahuay, 86.6% of the material recovered was from the Kitchen group (Table 7.7). All but one of the group members (Tableware) was represented, with Coarse Earthenware making up the bulk of the assemblage (69.8%). Trends through time are seen in the increased frequency of Glass and Stoneware/Porcelain during the Late Period, and a decrease in the incidence of Lead-Glazed Pottery. Other European Pottery made up a small percentage (6.1%) of the Late assemblage, which may reflect limited use of the winery after the introduction of such products.

The remaining eight non-Kitchen artifact groups made up 13.4% of the Yahuay assemblage. Unidentified Metal fragments constituted the largest percentage of the artifacts from both Middle and Late assemblages, with Wood Construction and Industrial groups reflecting the next highest incidences. All remaining groups account for less than 1% of both the period and overall assemblages. Trends through time are not significantly apparent, although construction materials increase slightly during the Late Period, while Industrial Items and Unidentified Metal decrease.

Table 7.8 provides a more specific view of the artifacts that make up each individual category, as well as the Andean or European influences they reflect. Andean-made Mas Alla and Escapalaque Polychromes were more common in the assemblage than were imported tin-enamels. While the use of these wares remains fairly constant through both the Middle and Late Periods, it is interesting to note, however, that only the use of Panamanian tin-enameled pottery increases through time. Data from all four sites indicates that tin-enameled pottery from Panama was far more common than imported European wares.

Table 7.7: Yahuay Artifacts by Group and Time Period

Category	Pre-1600		1600-1780		post-1780		Percent of Total
	#	%	#	%	#	%	
KITCHEN GROUP							
Tin-Enameled Pottery	0	0	50	7.8	46	7.4	7.6
Lead-Glazed Pottery	0	0	13	2.0	3	0.5	1.3
Coarse Earthenware	0	0	456	71.0	423	68.5	69.8
Stoneware, Porcelain	0	0	1	0.2	5	0.8	0.5
Other European Pottery	0	0	0	0	39	6.3	3.1
Glass	0	0	17	2.6	38	6.1	4.4
Tableware	0	0	0	0	0	0	0
Subtotal	0	0	537	83.6	554	89.6	86.6%
WOOD CONSTRUCTION	0	0	11	1.7	19	3.1	2.4
CLOTHING	0	0	4	0.6	5	0.8	0.7
PERSONAL	0	0	5	0.8	3	0.5	0.6
ACTIVITES	0	0	0	0	1	0.2	0.07
INDUSTRIAL ITEMS	0	0	11	1.7	5	0.8	1.3
UNIDENTIFIED METAL	0	0	71	11.1	30	4.8	8.0
WEAPONRY	0	0	1	0.2	1	0.2	0.1
HORSE HARDWARE	0	0	2	0.3	0	0	0.1
Subtotal	0	0	105	16.4	64	10.4	13.4
TOTAL	0	0	642	100.0	618	100.0	100.0

Table 7.8: Artifacts Recovered from Yahuay

	Middle	Late
Tin-Enameled Pottery		
Escapalaque Polychrome	4	3
Mas Alla Polychrome	30	23
Tin-Enameled/Lead-Glazed	2	0
Panamanian Polychrome	5	13
Faience	1	0
Unidentified	8	7
Lead-Glazed Coarse Earthenware		
Storage Jar	2	1
Lead-Glazed	2	1
Cuy Lead-Glazed	9	1
Coarse Earthenware		
Cuy Plain	193	130
Plain Coarse Earthenware	245	285
Painted Coarse Earthenware	9	1
Red Slipped	9	6
incised	0	1
Stoneware, Porcelain		
Porcelain	1	5
Other European Pottery		
Whiteware, plain		6
Hand Painted Pearlware		1
Transfer printed Whiteware		5
Semiporcelain		3
Ironstone		24
Glass		
green	3	1
olive	9	25
clear	4	7
amethyst	0	3
brown	0	2
blue green	1	0

Table 7.8 -- continued

	Middle	Late	
Wood Construction			
nails, unidentified	8	11	
spikes, cut	0	4	
u-shaped fastener	1	2	
lock fragment	0	1	
other	1	1	
brass tack	1	0	
Masonry Construction			
mortar	0	31g	
Clothing, Textile, Adornment			
fabric	1	0	
bead, green glass	1	0	
button	shell, 1	glass, 4	
buckle, copper	1	0	
shoe leather	0	1	
Personal			
coin	0	2	
religious	1	0	
pipe	4	0	
unidentified object fragment		0	1
Activities			
sewing whorl, tinaja fragment		0	1
Industrial items, tools			
corks	0	1	
baling seal	0	1	
mechero ware	11	3	
Byproducts, Industrial substances, Processing materials			
lime	3g	0	
pitch	89g	0	
Fauna	7849g	20984g	
Shell	1g	0	

Table 7.8 --continued

	Middle	Late
Unidentified Metal Fragments		
iron fragment	67	21
iron sheet	2	8
copper fragment	0	1
copper sheet	2	0
Tinaja	147g	5294g
Botija	149g	4180g
Miscellaneous Substances		
sulphur	0	10g
clay	2g	0
Weaponry		
musketball	1	0
flint, honey-colored	0	1
Horse Hardware		
iron shoe	2	0

The percentages of Coarse Earthenware remain fairly constant through time at Yahuay, with Plain Coarse Earthenware outnumbering Cuy Plain fragments during both Middle and Late periods. Decorated wares are not common within the sample, although a slight decrease in their frequency is evident through time. Lead-Glazed wares, especially Cuy Lead-Glazed, also decrease from Middle to Late Periods.

It is worth noting that Yahuay contains the fewest examples of Other European Pottery of any of the excavated wineries. These wares, and Glass fragments as well, were infrequent at the site, which may reflect a limited occupation during the Late Period, when these artifacts flooded the country. Low percentages of these materials may prove to be useful temporal measures in future research in the area.

The Personal group of artifacts at Yahuay is of interest, especially in light of the fact that the site was reputedly inhabited by Jesuits during the eighteenth century. Four clay pipe fragments were recovered that (along with two from Locumbilla) are among the few examples we have of Colonial smoking behavior in the valley (Figure 7.8). These pipes were all hand molded, and range from light brown to black in color. Their short length and stem diameter suggest that a piece of hollow cane may have been inserted in the bore during use.

One other item of interest from Yahuay is a clear glass bead and wire attachment recovered from a Middle Period context. Although no additional beads of that kind were found, it is thought to be part of a rosary. Pictured in Figure 7.8, this represents one of the few religious artifacts in the valley.

With respect to the origin of the artifacts recovered from Yahuay that could be so identified, 88.2% of the material from the site was of Andean manufacture (Table 7.9). European products accounted for 10.2% of the

Figure 7.8: Religious Artifacts and Smoking-Related Artifacts

Religious Artifacts - left to right:
- cross, FS# 19-1464;
- clear glass rosary bead, FS# 27-51;
- cross, FS# 1-34.

Smoking-Related Artifacts -
- top row, left to right:
  - pipestems, FS# 27-54, FS# 27-64, FS# 27-65;
- second row, left to right:
  - pipebowl fragments, FS# 19-1524, FS# 27-35, FS# 19-1507;
- third row, left to right:
  - cigarette pack, FS# 4-43, FS# 4-43;
  - German matchbox, FS# 4-48;
- bottom row:
  - cigarette pack, FS# 4-43


cm


cm
in

Table 7.9: Origin of Artifacts from Yahuay

Category	Peru	Europe	Panama
Tin-Enameled Pottery	62	1	18
Lead-Glazed Pottery	14		
Coarse Earthenware	879		
Stoneware, Porcelain		6	
Other European Pottery		39	
Glass		55	
Tableware			
Wood Construction		1	
Clothing	1	5	
Personal, Coins	6	1	
Activities	1		
Industrial Items, Tools	14	2	
Unidentified Metal		101	
Weaponry		2	
Horse Hardware	1		
TOTAL	978	113	18
PERCENT	88.2%	10.2%	1.6%

assemblage, while Panamanian tin-enameled pottery made up 1.6%. Andean wares made up the bulk of Kitchen Group artifacts, Personal Items, and Industrial Artifacts (Mechero Plain ware). European artifacts were primarily found in Late contexts, although one sherd each of Faience and Porcelain was recovered from Middle Period proveniences, as well as glass fragments and a green glass bead, a musketball, and the aforementioned rosary bead.

Excavated Data from Estopacaje

From the three units at Estopacaje, 10 proveniences were excavated and analyzed (Appendix A). Recovered artifacts numbered 337 and represented occupation during the Middle and, primarily, Late Periods. Contrary to documentary references to the sixteenth century occupation of Estopacaje, no evidence was recovered that suggested Early use of the site. Of the site total, 16.3% of the artifact assemblage came from proveniences dating to the Middle Period, while the remaining 83.7% represented Late deposition. Sixteenth century documentary references to Estopacaje may therefore be referring to a region within the valley, as is true of the Omo sector, rather than to an individual bodega.

At Estopacaje, Kitchen artifacts accounted for 87.8% of the site assemblage, of which Coarse Earthenware comprised 40% overall (Table 7.10). Other European Pottery made up 21.7% of the total, followed by Glass (12.2%), Tin-Enameled Pottery (9.5%), Lead-Glazed (3.8%), and Stoneware/Porcelain (0.6%). No Table Utensils were recovered from the site. As seen in the table, use of Coarse Earthenwares and Tin-Enameled Pottery decreased during the Late Period, with Lead-Glazed and Other European Pottery serving as replacement wares. The use of glass at the site increased during the Late Period.

Table 7.10: Estopacaje Artifacts by Group and Time Period

Category	Pre-1600		1600-1780		post-1780		Percent of Total
	#	%	#	%	#	%	%
KITCHEN GROUP							
Tin-Enameled Pottery	0	0	16	29.1	16	5.7	9.5
Lead-Glazed Pottery	0	0	0	0	13	4.6	3.8
Coarse Earthenware	0	0	36	65.4	99	35.1	40.0
Stoneware, Porcelain	0	0	0	0	2	0.7	0.6
Other European Pottery	0	0	0	0	73	25.8	21.7
Glass	0	0	3	5.4	38	13.5	12.2
Tableware	0	0	0	0	0	0	0
Subtotal	0	0	55	99.9	241	85.4	87.8
WOOD CONSTRUCTION	0	0	0	0	4	1.4	1.2
CLOTHING	0	0	0	0	4	1.4	1.2
PERSONAL	0	0	0	0	1	0.4	0.3
ACTIVITIES	0	0	0	0	2	0.7	0.6
INDUSTRIAL ITEMS	0	0	0	0	0	0	0
UNIDENTIFIED METAL	0	0	0	0	29	10.3	8.6
WEAPONRY	0	0	0	0	1	0.4	0.3
HORSE HARDWARE	0	0	0	0	0	0	0
Subtotal	0	0	0	0	41	14.6	12.2
TOTAL	0	0	55	99.9	282	100.0	100.0

The remaining artifact groups represented at the site made up 12.2% of the total and occurred only in Late contexts. Unidentified Metal fragments made up the largest percentage (10.3%), followed by Wood Construction (1.4%), Clothing (1.4%), and Personal, Activity, and Weaponry groups (all less than 1%).

Table 7.11 lists the specific artifacts within each category and provides a clearer picture of the use of Andean and European products through time. Given that only Kitchen artifacts were recovered from the Middle Period (with the exception of the weighed materials included in the table), change through time is only apparent within this group. The Tin-Enameled Pottery classification was found to include more imported wares during the Middle Period, including pottery from Panama, France, and Seville. One sherd of Sevilla Delft-Like was recovered, which is thought to date to the seventeenth and eighteenth centuries (McEwan 1988:249). During the Late Period these wares appear to have declined in use, and Andean-made Mas Alla and Escapalaque Polychromes were more common.

With respect to the presence of Coarse Earthenwares, all of which are Andean in origin, we see an increase through time. Cuy Plain is the most commonly encountered ware during both periods, although plain coarse earthenware does increase in frequency during the Late Period. Painted and Red Slipped pottery are not common during the Middle Period, but are completely absent during the Late.

With respect to the origin of material recovered from Estopacaje, 56.9% of the artifacts that could be identified in that manner were found to be Andean in origin (Table 7.12). European products accounted for 41.1%, representing primarily Late influence as seen in the introduction of Stoneware/Porcelain, Other European Pottery, Glass, an aglet, and a lead

Table 7.11: Artifacts Recovered From Estopacaje

	Middle	Late
Tin-Enameled Pottery		
Escapalaque Polychrome	1	2
Mas Alla Polychrome	4	12
Tin-Enameled/Lead-Glazed	1	1
Panamanian Polychrome	6	0
Sevilla Ware	1	1
Faience	3	0
Lead-Glazed Coarse Earthenware		
Lead-Glazed	0	6
Cuy Lead-Glazed	0	7
Coarse Earthenware		
Cuy Plain	30	73
Plain Coarse Earthenware	3	26
Painted Coarse Earthenware	1	0
Red Slipped	2	0
Stoneware, Porcelain		
Brown Saltglazed Stoneware	0	1
Porcelain	0	1
Other European Pottery		
Pearlware, plain		3
Whiteware, plain		25
Annularware		3
Hand Painted Pearlware		4
Transfer printed Pearlware		2
Transfer printed Whiteware		22
Shell-edged Pearlware		1
Ironstone		13
Glass		
green	3	9
olive	0	10
clear	0	16
brown	0	3

Table 7.11 -- continued

	Middle	Late
Wood Construction		
nails, unidentified	0	3
spikes, cut	0	1
Clothing, Textile, Adornment		
button	0	3
aglet	0	1
Personal		
coin	0	3
Activities		
toys	0	2
Byproducts, Industrial substances, Processing materials		
lime	3g	0
pitch	89g	0
Fauna	334g	872g
Shell	1g	3g
Grapes		
Unidentified Metal Fragments		
iron fragment	0	18
iron sheet	0	8
copper fragment	0	1
copper loop	0	1
brass fragment	0	1
Tinaja	0	133g
Botija	8g	0
Weaponry		
bullet, lead	0	1

Table 7.12: Origin of Estopacaje Artifacts

Category	Peru	Europe	Panama
Tin-Enameled Pottery	21	5	6
Lead-Glazed Pottery	13		
Coarse Earthenware	135		
Stoneware, Porcelain		2	
Other European Pottery		73	
Glass		41	
Tableware			
Wood Construction			
Clothing		1	
Personal, Coins	1		
Activities			
Industrial Items, Tools			
Unidentified Metal			
Weaponry		1	
Horse Hardware			
TOTAL	170	123	6
PERCENT	56.9%	41.1%	2.0%

bullet. Only four tin-enameled sherds and three glass fragments represented European introductions during the Middle Period. Tin-enameled pottery from Panama made up 2% of the total assemblage, as seen in six sherds taken from Middle Period contexts.

Synthesis of Results

Excavations at Locumbilla, Chincha, Yahuay, and Estopacaje have provided data on Andean and European contributions to the Colonial material culture of the Moquegua Valley, and allow for interpretations regarding cultural development and change as a result of culture contact in southern Peru. Archaeological investigation of the bodegas has revealed that imported materials comprised a very small percentage of the material inventory of the earliest Colonial residents. During the Middle Period we see trait admixture in material culture, which reflects the combination of European and Andean elements in the formation of a new, mestizo-like assemblage. By the end of the Colonial Period and during the early years of independence, a dramatic change is evident in material culture, with additions and replacements in the assemblage associated with the Industrial Revolution and the lifting of trade restrictions. Deposits that post-date circa 1778 are stratigraphically undifferentiated with respect to Colonial and Early Republican Periods.

Based on an analysis of material from Colonial contexts representing Early, Middle, and Late Periods at the four excavated wineries, a seriation of the sites is possible. Locumbilla is certainly the easiest to interpret, since it was the only site where sixteenth century occupation was revealed, but it is useful to assess the relationship between artifacts recovered and temporal occupation of all the sites, as seen below. Interestingly, although it was

suspected originally that "increases" in certain artifacts from the Middle to Late Periods was simply a function of having excavated of a larger number of late-dating proveniences, the reverse is actually true (Appendix A). Middle Period proveniences outnumbered Late proveniences at Chincha (85 to 83, respectively), at Yahuay (49 to 11), and at Locumbilla (167 to 61), which lends strong support to the perceived increases at each site. Only at Estopacaje, where only 10 proveniences were excavated, were Late Period contexts dominant.

Table 7.13: Seriation of Sites Based on Assemblage Percentages and Time Period

	Early	Middle	Late
Locumbilla	5.4%	50.3%	44.2%
Yahuay		51.0%	49.0%
Chincha		28.3%	71.7%
Estopacaje		16.3%	83.7%

Artifacts recovered from all four bodegas reflect the fact that the residents were using products that were largely Andean in origin. This is especially true during the Early and Middle Periods, although some imported products were reaching the valley despite trade restrictions and the distance to ports. A summary of Andean versus imported products recovered from the four sites is presented below.

Table 7.14: Origin of Artifacts from the Excavated Sites

	Andes	Europe	Panama	Cuba	Mexico
Locumbilla	88.5%	10.7%	0.7%	0	0.03%
Yahuay	88.6%	9.7%	1.6%	0	0
Chincha	61.0%	37.8%	1.0%	0.08%	0.1%
Estopacaje	56.9%	41.1%	2.0%	0	0

These percentages reflect only those artifacts within the artifact groups discussed previously in the chapter. Additional observations regarding domestic- and industrially-related artifact categories that were quantified by weight, including industrial pottery, fauna, botanical material, and miscellaneous substances are discussed below.

Within the domestic sphere, tin-enameled pottery, Lead-Glazed pottery, and unglazed coarse earthenwares reflect a blending of European formal and decorative attributes with Andean ceramic technology. Kitchen-related artifacts were the dominant feature of assemblages at all four sites, accounting for between 78.8% to 90.4% of the site totals. Within this group, we have seen that Andean-made Mas Alla and Estopacaje Tin-Enameled wares were produced, probably beginning in the early seventeenth century, and used increasingly in place of imported European tablewares. Hispanic tin-enameled pottery accounted for a very small percentage of each site assemblage; Panamanian pottery was the most common of the non-Andean wares and reflects economic contact with Portabello. The high percentage of pottery in the bodega assemblages reflects the importance of these wares in daily life and parallels a similar predominance at other Spanish Colonial settlements (Deagan 1985; Smith 1986; McEwan 1988). The fact that Old World ceramic types played such a minor role in Moquegua, however, illustrates a dramatic difference in the character of Peruvian assemblages.

Manufacturing of products other than pottery and textiles did not develop in Peru until the late-nineteenth and twentieth centuries, which meant that other goods such as glass, stoneware, porcelain, glass beads, and certain items such as sewing-related pins and thimbles were present in Colonial contexts only through trade. These were extremely few in number during the Early Period, as seen at Locumbilla, and present in only slightly

higher frequency in Middle Period contexts at all four sites. At all the sites, artifact categories including Glass, Stoneware/Porcelain, Construction Materials, and Personal Artifacts show a steady increase in use through time, especially in light of the larger frequency of excavated Middle Period contexts.

It is during the Late Period, after the declaration of comercio libre by Spain, that we see the more widespread presence of non-kitchen artifacts in the assemblages, especially Activity-related artifacts, Weaponry, and Horse Hardware. Especially at the latest-dating sites of Chincha and Estopacaje, a much broader range of material culture items was noticeable. The nineteenth century was clearly a golden era for international commerce, as reflected in the flood of products from Germany, Sweden, France, and England that found their way to Moquegua.

A few rare artifacts were found that were probably locally-made, but, as at other Spanish Colonial sites, cannot be clearly attributed to any one location. These include such things as bone buttons, drilled stone beads, and earthenware pipes that require analysis by specialists if we are to know more about their origin. Other artifacts were found, including gaming discs made of pottery, a spindle whorl made from a tinaja fragment, and a button made from gourd, that represent well-known types of artifacts that, in light of the materials they were made from, were clearly of Andean manufacture. Artifacts of this kind usually indicate the recombination of a basic idea with a new raw material, which is the basis for many such innovations (Barnett 1953).

It will be interesting to learn whether the Colonial diet reflects a pattern of conservatism or innovation. We know in general that agricultural and livestock industries in Colonial Peru were successful from the outset (Vicens Vives 1969:325), but how soon and to what extent European

introductions made their presence felt in daily sustenance in Moquegua is unknown. DeFrance (1991) has revealed that little species diversity is evident within the faunal samples analyzed to date, and that sheep, bovines, and caprines were recovered from Early Period contexts. It is assumed that patterns of native faunal exploitation were incorporated with Old World domesticates as has been noted elsewhere (Reitz and Scarry 1985), and given the diverse environments available in the Andes, a wide range of husbandry was probably possible.

With regard to plant species, we know that a variety of imports were present in the valley. Grapes, wheat, and peaches have been identified in Early contexts, and Middle Period deposits include a wide range of introduced fruits and vegetables (Appendix F). Native species were also recovered at the sites (Appendix E), and it will be interesting to investigate the specific, regional changes that occurred in agricultural production in future research. Clearly, the potato is, was, and ever shall be an important part of the Andean diet (Salaman 1949).

In terms of the wine industry, ceramic artifacts necessary in fermentation, storage, and transport including tinajas, botijas, and special use artifacts were of Andean manufacture but were Hispanic in design. One important exception was brea, which was brought in from Mexico and used as a sealant for botijas (MacLeod 1973). Brea was recovered from Middle Period contexts at Locumbilla, Yahuay, and Estopacaje, and was noted within numerous vessel fragments as well, which suggests this imported substance was highly valued within the context of the wine industry. The largest proportion of industrial substances and byproducts were recovered from Locumbilla, probably due to the presence of the ceramic kiln, which provides a useful index for interpreting similar results from future investigations.

Given the successful history of ceramic production in the Andes, it was probably of great help to Spaniards in Peru to have indigenous laborers assisting them in many tasks, including the manufacture of both domestic- and industrially-related pottery. Just as Andean laborers were able to provide technological insights to improve Potosí mining through the sharing of the huayra oven concept with the Spanish, it is probable that Andean adaptations were also incorporated into efficient resource use in Moquegua.

The foundation laid by the pre-Colonial Andean cultural tradition was of tremendous value in the success of the Spanish enterprise in Peru. Aspects of the economic infrastructure, such as irrigation systems, long distance transportation routes, and labor extraction mechanisms, were taken over by the Spanish and were successfully adapted to meet Spanish goals. The kurakas, who initially served as middlemen in the control and management of Andean resources, were also important catalysts in the Colonial enterprise. In terms of cultural development in Moquegua, however, it was probably the Andean commonfolk that played the major role. They supplied the labor, the local knowledge of resources and their efficient exploitation, and, according to the material culture of the bodegas, took part in the development of a distinctive material culture assemblage.

CHAPTER 8
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study of the bodegas of Moquegua has provided a basis for interpreting Andean and European influences in the development of Colonial culture in Peru. Shovel testing of 28 of the winery ruins has recovered a large body of archaeological data that establishes a range for understanding the material culture of the valley. Excavations at four of those sites has allowed us to look at change in material culture through time, and to interpret the various contributions of both Andean and European peoples to Colonial culture as a whole. The results of this study suggest that, in Moquegua at least, the mixing of elements from both cultures was adaptive, and led to the formation of a Latin American culture that exists today.

Shovel testing and mapping of bodega sites were undertaken in order to understand the layout, intensity of occupation, and general nature of archaeological deposits at each. In some cases, volcanic ash from the February 1600 eruption of the volcano Huaynaputina was encountered during testing, which allowed for the identification of Early Period (pre-1600) contexts that could be investigated during subsequent excavations. Sixteenth century deposits were not frequently located, however, and most of the tested sites suggest primarily seventeenth, eighteenth, and nineteenth century occupation.

Artifacts recovered during the testing phase reflected both domestic and industrial activities, which was not surprising since mapping and surface

collections had suggested that most bodegas included both residential and work-related sectors. Earthenware tinaja and botija fragments were characteristically found at all sites, as they were the vessels used in production, storage, and transport of the fermented products of the bodegas. Large kilns encountered at several of the sites indicate that many of these vessels were made in Moquegua for local use, which is especially probable with regard to tinajas, which measure up to 8 feet in height and are difficult to move without breakage. High densities of industrial artifacts, particularly broken botijas, led to the eventual discovery of a large buried kiln at Locumbilla bodega that has been radiocarbon dated to 1656 (Van Beck 1991).

The assemblage recovered during shovel testing of 28 bodegas also revealed that, although a wide range of artifacts was found throughout the valley, relatively small proportions of artifacts reflecting activities other than wine production and food preparation and consumption appear to have been in use. Materials that represented activities such as sewing and smoking were rare, and articles of personal use or adornment were also few in number. Those artifacts that were recovered came largely from surface collections of the sites, or were so obviously of late-dating European manufacture as to include written reference to their country of origin. Examples include cardboard matchboxes from Sweden, France, and Germany, as well as spools and pottery from Europe, particularly England.

Shovel testing made it clear that the ceramic assemblages at the Peruvian wineries, although large, were otherwise unlike those at other reported Spanish Colonial sites or at those investigated or visited by the author. Contrary to a comment made by a colleague, Colonial sites in Peru do not contain "the same stuff you see anytime you walk a historic site." European pottery, including Pearlware, Whiteware, and Ironstone, as noted

above, is indeed well-known and well-documented as common to historic sites that roughly postdate 1778, when they were first produced. The remainder of the ceramic assemblage at the bodegas, however, much of which was logically thought to predate the introduction of the known wares, proved to be unfamiliar and undocumented. Subsequent excavations, which allowed for a greater degree of temporal control than was possible in the shovel tests, provided an opportunity to investigate the nature and use of Colonial pottery in Peru.

Excavations were conducted at Locumbilla, Chincha, Yahuay, and Estopacaje bodegas, each of which had been shovel tested previously. While Middle (1600-1778) and Late (post-1778) Period contexts were encountered at all four sites, only Locumbilla contained evidence for sixteenth century Spanish Colonial occupation below a layer of volcanic ash. Both Locumbilla and Yahuay were sites of intensive domestic and industrial activity during the Middle Period, while deposits at Chincha and Estopacaje reflect primarily Late Period occupation. A total of approximately eight months of fieldwork was devoted to excavations at these sites, which provided data spanning late sixteenth through early nineteenth century Colonial occupation in Moquegua.

Results from Locumbilla indicate construction and operation of that bodega during the sixteenth century, as seen in the presence of Colonial material beneath a layer of undisturbed volcanic ash. The remains of a pre-1600, rectangular stone structure and clay floor were located below surface in association with botija fragments, grapes, wheat, and other indigenous and local botanical and faunal remains. A partial, brick-like exterior paving was also encountered and found to date to the sixteenth century, as well as a largely domestic assemblage whose only imported artifacts were Panamanian

tin-enameled pottery. Kitchen artifacts included a few fragments of Cuy Plain pottery, a colono-ware that began to be produced in the sixteenth century. Industrial artifacts were also recovered from the Early component, including botija, tinaja, Mechero Plain pottery, and lime. In all, archaeological data suggest that, at Locumbilla at least, material culture was primarily of Andean manufacture during the sixteenth century, with industrial elements of local manufacture and European design. Only with regard to plant and animal remains were European elements recovered.

Middle Period deposits reflect the Andean production of tin-enameled and lead-glazed pottery as substitutions for imported wares. Two tin-enameled wares, Mas Alla Polychrome and Estopacaje Polychrome have been identified from the Moquegua assemblage (Rice 1990), as well as Mojinete Glazed-Enameled pottery, which combines two kinds of surface treatment. Lead-glazing is also present in a variety of small bowls and in examples of Cuy Lead-Glazed pottery, a colono-ware that was sometimes glazed.

Cuy Plain pottery increases in frequency during both the Middle and Late Periods, and appears to have been the undecorated Colonial cooking ware of choice in this part of southern Peru. Some of the Cuy Lead-Glazed pottery appears to have been used in cooking as well. Decorated wares that seem to have fulfilled non-cooking functions, including Red Slipped, punctated, and incised coarse earthenwares, were infrequent and appear to have been used most during the Middle Period.

Painted coarse earthenware pottery was recovered mainly from Early and Middle contexts, as seen most notably in polychrome painted Inka pottery recovered from Locumbilla. The presence of these luxury-quality wares is unusual due to the fact that no Inka sites are known in Moquegua; the use of Inka pottery by high status individuals is probable, be it by Spaniards or

kurakas, and should be investigated in future research. During the late sixteenth and early seventeenth centuries, painted Inka pottery may have been used by Spaniards in Peru due to a lack of access to imported wares. The necessity for this type of substitution would have been increased by distance from ports of entry and the status of an individual or family, although given that Lima was the primary focus of both entry and status, available quantities were insufficient throughout the country for filling the needs of the desirous (Tschopik 1950; Borah 1954; Lockhart 1968).

With regard to the ceramic assemblage as a whole, the pottery of Moquegua reveals a number of interesting features with respect to similar assemblages from the more frequently researched settlements of Florida, Hispaniola, and Mexico, for example. Clearly, the importance of pottery is evidenced in all these locations, as seen in the predominance of ceramic artifacts at Spanish Colonial sites. In Peru, as elsewhere, locally-made coarse earthenwares played an indispensable role in food preparation, frequently incorporating European formal elements, while serving functions were most often met using tin-enameled and lead-glazed wares. In Moquegua, however, we see a glaring distinction in the dearth of imported Hispanic and European wares that were important social and utilitarian elements in Spanish Colonial material culture as studied elsewhere (Deagan 1983; Ewen 1987; South et al. 1988).

In response to the scarcity of imports, the Moquegua data show that, at least by the early seventeenth century, a Peruvian industry of tin-enameled and lead-glazed pottery production had begun. It is known that pottery "factories" were well established in Mexico in early Colonial times, and were supervised by Spanish entrepreneurs who were either potters themselves or were at least familar with Old World techniques. The same opportunities for

ceramic production were present in Peru, given the already flourishing craft industries of the Andes and the large number of Spanish artisans known to have settled in Peru (Lockhart 1968). From the inception of pottery production, indigenous laborers learned European techniques of glazing and the use of the potter's wheel, and through time a desire to use these new products may have been acquired by them as well.

Whether or not the creation and use of new products or the admixture of traits in Moquegua were matters of adaptation or acculturation is not clearly evident. As Reitz and Scarry (1985) have pointed out, the line between the two is difficult to draw, especially in cases like the Colonial Andes, where concessions to environmental circumstances are necessary in many aspects of economic life. It has been argued herein that the successes of the Colonial Period in Peru were the result of transculturation, with aspects of both economic and material life reflecting the combination of elements of both cultures. This appears to be especially the case during the Middle Period (1600-1778), when the economic success of the wine industry in Moquegua was paralleled by a supply of a largely internally-produced domestic and industrial material inventory.

During the Early and Middle Periods, the Spanish adapted to the scarcity of imported goods by using local products and by directing industries toward the manufacture of products suited more directly to their needs and desires. Obrajes involved in making pottery and textiles provide two such examples. Also, Spaniards were acculturated to the successful adaptations handed down by centuries of Andean civilization with regard to efficient resource use in a harsh environmental setting. The complex culture of the Andes, which had developed over the course of millenia, offered useful elements over which the Spanish took control. Infrastructurally and

technologically speaking, Andean culture offered elements of culture that were similar to and in some cases more highly developed than those of Spain, which led the Spanish to incorporate non-European elements into the new Colonial culture. With respect to the complexity of indigenous culture and the concommitant Colonial contributions, Peru shared a number of commonalities with Mexico. As Arnade (1960) has pointed out, the level of cultural and infrastructural development of a contacted culture had much to do with Spanish success in an area, as well as with the lasting effects of the culture that resulted from that contact.

In Peru, given the distance from Spain and the isolation of valleys like Moquegua, it may also be that a great deal of "Indian absorption" in the form of miscegenation was taking place, as discussed by Faron (1985). Opportunities for cultural interaction in Moquegua existed both within the context of the wine industry and with respect to intermarriage. Regardless of whether cultural mixture was biological in nature, the yanaconas (or sharecroppers) who worked for Spanish estates experienced a cultural and legally-defined transformation as part of the new Colonial economy in Peru. This type of shift to transient labor parallels that noted by Barnett (1940), who observed individualism, lack of reciprocal service, and the acceptance of new values as accompanying such changes. During the Middle Period of Colonial history in Peru, it may be that the Spanish were adapting/becoming acculturated through locational necessity, while the Indians and resultant mestizos were doing the same under a new economic system that held the potential for upward mobility. In both cases, need and opportunity appear to have combined in the formation of a Colonial culture born of a mixture of people and cultural elements.

The Late Colonial Period (post-1778) material culture of Moquegua illustrates the fact that a dramatic change occurred in international trade and economics, and that artifact patterns in Peru were again greatly altered. Imported pottery, which was mass-produced in Europe and available worldwide at reasonable prices, began to appear in Late proveniences within the bodega assemblages. Glass became much more common also, as did artifacts covering a wide range of domestic- and industrially-related categories. Articles of adornment, personal items, wooden barrels, lead baling seals, bricks, and various metal objects, to name a few, were brought in from Europe in large quantities. No longer isolated economically, the residents of Moquegua became independent of Spain during the nineteenth century and, as seen materially, became involved in and affected by the international influences of the Industrial Revolution.

Several authors (Arnade 1960; Mariátegui 1971; Dobyns and Doughty 1976; Wolf 1982) have pointed out the economic short-sightedness of Spanish policy with regard to its colonies. Spain supplied the colonies with priests, politicians, and nobles, while the colonies craved more practical things--among them economic opportunity. At about the time of South American independence, the economic interests of the colonies and of the capitalist West coincided (Mariátegui 1971:3-12), which led to the influx of material culture discussed above and to increased relations between Peru and England. The British supplied capital for railroads and industry in return for the guano and nitrates found along the coast, which launched Peru into yet another cultural transformation and toward the position they hold today.

Historical archaeology is in a good position to further elucidate the cultural formations that grew out of the Spanish Colonial Period in the Andes. Many potential contributions will be a long time in coming, based on

the scarce archaeological contexts available at this time, and due to the nature of questions and needs most often put forth by historians and anthropologists working in the region. General concerns and specific aspects of the archaeological record that can be investigated are discussed below.

Many of the questions that need answering involve the need for more information regarding the kurakas. What were the extent of their landholdings, and which products from highland/lowland locations were under their control (Pease 1985:156)? How did the kurakas use resources, both for the benefit of the Spanish and to their own advantage? By studying these individuals, who were essentially economic and cultural middlemen, we may be able to learn something about how change under the Spanish was manifest in the thinking and behavior of the indigenous community that had to change along with the economic system of which they were a part. Only a long-term, multidisciplinary search can accomplish these ends, which will require the continuation of archaeological and historical studies in Peru.

A number of specific problems can be pursued archaeologically in Peru. First of all, we need to know more about the Colonial artifacts in general, and about the industries and people that produced the pottery, textiles, botijas, tinajas, and other products of the Colonial Period. Knowing the circumstances under which Colonial goods were manufactured, acquired, and used in Colonial Peru are important considerations that will hopefully be addressed in the near future. With regard to nineteenth century material culture, which was outside the scope of this study, an examination of imported pottery as outlined by Klein (1991) would be very illuminating. While this research has documented new Colonial material culture items and put them within a general temporal context, additional research is necessary to refine the observations presented here and to discover more

about the Colonial Period in the Andes and the subsequent developments of the post-independence years.

Studies of craft specialization could reveal additional areas in which Andean and European technologies and products were developed in Colonial Peru. Studies by metallurgists could tell us something about the production of metal objects, whether of lead, copper, silver, gold, or iron. Amorphous fragments of iron were recovered from a few early contexts, and we can only speculate that some sort of metalworking was taking place in Peru, perhaps locally. A number of questions also remain with regard to the use of faunal and botanical resources in Peru, especially with regard to husbandry and cultivation practices, and the acquisition of such resources in relation to different elevational settings and communities.

Altitudinal differences must also be considered in assessing the degree of admixture, both cultural and biological, in different parts of the Andes. Given the inability of Spaniards to reproduce at high altitudes due to the effects of hypoxia, criollo and mestizo populations in high elevation settlements were probably small, if not virtually nonexistent The overall influence of Hispanic culture on highland communities is known to have been much less than that evidenced in the lowlands (Harris 1964; Morner 1967), and through future research it may be possible to construct a scale of sorts relating cultural admixture in the Andes and relative altitude.

One scale that was used in this study in considering acculturative influences was that proposed by Casagrande et al. (1964). Distances from Spain and from Colonial ports were compounded by restrictive international trade laws and environmental extremes, and are important considerations in assessing and scaling the transmission of "Hispanicity" in the New World (Skowronek 1989). More data are needed from previously unstudied areas of

Spanish Colonial settlement in order to understand adaptation/acculturation from a broader perspective that takes into account a number of factors, some of which may be interrelated. Miscegenation may be more common in remote valleys associated with industrial activites that entailed greater inter-ethnic interaction, for example, as has been noted in the specific results of this study. Through a consideration of a wider variety of socioeconomic and environmental circumstances, it may be possible to identify additional acculturative influences, and to clarify the differences between acculturation and adaptation.

Also from a comparative perspective, we need more specific information about the residents of Moquegua and their lifestyles. Not enough is known at this time about the status or ethnic identities of the inhabitants of Moquegua in general, or the bodegas in particular, to allow a comparative look at a range of behavior. If that were possible, we could look at archaeological data associated with Spaniards, kurakas, municipal leaders, indigenous laborers, and mestizos in order to investigate the patterns associated with each. With such a database, it would be possible to approach the question of acculturation versus adaptation more concretely. Ideally, a comparative study of town life in Moquegua versus life at the bodegas might have revealed contrasts in material culture that would have allowed us to begin to distinguish between varying socioeconomic levels within the valley. Instead, the overall pattern that has emerged from this study is that, in lieu of alternatives, the residents of the Moquegua valley found that the mixture of elements from both European and Andean cultures was adaptive during the Colonial Period.

This research has addressed what Kubler (1946:363) called the most poorly studied aspect of Colonial life in the Andes--its material culture. In so

doing, this study has established archaeological patterns in a previously uninvestigated area toward a better understanding of Spanish Colonial adaptations and acculturation in the Americas. A wide range of data are necessary if we are to generalize with regard to Latin America, a cultural entity so diverse it cannot be reduced to any one of the distinctive cultural factors that contributed to its formation. In Peru at least, the culture of today is one with its own distinct Euro-Andean personality, created from the realities of ecology, history, and the process of cultural hybridization.

APPENDIX A:
PROVENIENCE GUIDE TO 1987-89 BODEGA EXCAVATIONS

E = Early
M = Middle
L = Late

FS#	Excavation Unit	Prov.	Period	Chron. marker
Chincha Bodega				
4-1	1077.5N/1001E	Zone A	L	Stratigraphy
4-2	1077.5N/1007E	Zone A	L	Whiteware
4-3	1048N/1000E	Zone A	L	Stratigraphy
4-4	1048N/1000E	Zone B	L	Stratigraphy
4-5	1048N/1000E	Zone C	L	Ironstone
4-6	1048N/1000E	Zone D	L	Pearlware
4-7	1048N/1000E	Zone E	L	Stratigraphy
4-8	1048N/1000E	Zone F	L	Pearlware
4-9	1077.5N/1001E	Zone B	L	Stratigraphy
4-10	1077.5N/1001E	Zone C	L	Pearlware
4-11	1077.5N/1007E	Zone B	L	Ironstone
4-12	1077.5N/1007E	Zone C	L	Whiteware
4-13	1077.5N/1007E	Zone D	L	Stratigraphy
4-14	1031N/1044E	Zone A	L	Ironstone
4-15	1031N/1044E	Zone B	L	Ironstone
4-16	1031N/1044E	Zone C1	L	Whiteware
4-17	1031N/1044E	Zone C2	L	Stratigraphy
4-19	1047N/1025E	Zone B	L	Stratigraphy
4-20	1047N/1025E	Area 1	L	Ironstone
4-21	1047N/1025E	Area 3	L	Ironstone
4-22	1047N/1025E	Zone C	L	Ironstone
4-23	1050N/1044E	Zone B	L	1888 coin
4-24	1050N/1044E	Floor 2	L	wire nail
4-25	1050N/1044E	Zone C	L	Whiteware
4-26	1050N/1044E	Area 1	L	Stratigraphy
4-27	1050N/1044E	Zone D	L	Stratigraphy
4-28	1047N/1025E	Builder's Tr. B	M	Stratigraphy
4-29	1031N/1044E	Zone E	L	Stratigraphy
4-30	1031N/1044E	Zone F	L	Pearlware
4-31	1031N/1044E	Zone G	M	Stratigraphy
4-32	1031N/1044E	Zone H	M	Stratigraphy

4-33	1031N/1044E	Zone D	L	Stratigraphy
4-34	1031N/1044E	Zone I	M	Stratigraphy
4-35	1031N/1044E	Zone J	M	Stratigraphy
4-36	1031N/1044E	Zone K	M	Stratigraphy
4-37	1031N/1044E	Feature 1	M	Stratigraphy
4-38	1050N/1044E	Zone E	L	Stratigraphy
4-39	1050N/1044E	Zone F	L	Pearlware
4-40	1050N/1044E	Zone G	M	Stratigraphy
4-41	1087N/1048E	Zone A	L	Wire nail
4-42	1087N/1048E	Zone B	L	Ironstone
4-43	1087N/1048E	Zone C	L	1892 paper
4-44	1050N/1044E	Zone H	M	Stratigraphy
4-45	1031N/1044E	Zone L	M	Stratigraphy
4-46	1031N/1044E	Feature 2	M	18th C. majolica
4-47	1031N/1044E	Zone M	M	Stratigraphy
4-48	1087N/1048E	Zone D	L	Ironstone
4-49	1087N/1048E	Zone E	L	1892 paper
4-50	Falca cleaning	Canal	L	1883 Boliv. coin
4-51	1087N/1048E	Zone F	L	Whiteware
4-52	1087N/1048E	Area 1	M	Stratigraphy
4-53	1087N/1048E	Post Hole 1	M	Stratigraphy
4-54	1087N/1048E	Feature 3	PC	burial, unexcav.
4-56	1017N/1009E	Zone A	L	Ironstone
4-57	1017N/1009E	Zone B	L	Ironstone
4-58	1080N/1032E	Zone A1	L	Whiteware
4-60	1034.5N/1044E	Zone C1	L	Ironstone
4-61	1034.5N/1044E	Zone C2	L	1863 coin
4-62	1034.5N/1044E	Zone D	L	Whiteware
4-63	1034.5N/1044E	Zone E	L	Whiteware
4-64	1080N/1032E	Zone A2	M	Stratigraphy
4-65	1080N/1032E	Area 1	M	Stratigraphy
4-66/71	1080N/1032E	Wall fill	L	Whiteware
4-67	1017N/1009E	Zone C	M	Stratigraphy
4-68	1017N/1009E	Area 2	M	Stratigraphy
4-69	1080N/1032E	Post Hole 1	M	Stratigraphy
4-70	1080N/1032E	Post Hole 2	M	Stratigraphy
4-73	1080N/1032E	Zone B	M	Stratigraphy
4-74	1080N/1032E	Zone C	M	Stratigraphy
4-76	1015.5N/1008.5E	Zone B1	L	Stratigraphy
4-77	1015.5N/1008.5E	Zone B2	L	Ironstone
4-78	1015.5N/1008.5E	Zone C	M	Stratigraphy
4-79	1015.5N/1008.5E	Floor 1	M	Stratigraphy
4-80/81	1034.5N/1044E	Floor 1	L	Whiteware
4-82	1034.5N/1044E	Zone G	M	Stratigraphy
4-83	1034.5N/1044E	Zone F	L	Creamware
4-84	1034.5N/1044E	Zone H	M	Stratigraphy

4-85	1034.5N/1044E	Area 2	M	Stratigraphy
4-86	1034.5N/1044E	Post 1	L	Stratigraphy
4-87/8	1017N/1009E	Feature 5	L	Whiteware
4-89	1017N/1009E	Zone D	M	Stratigraphy
4-90	1017N/1009E	Zone D1	M	Stratigraphy
4-92	1017N/1009E	Zone D2	M	Stratigraphy
4-93	1015.5N/1008.5E	Zone D	M	Stratigraphy
4-94	1015.5N/1008.5E	Area 2	M	Stratigraphy
4-95	1015.5N/1008.5E	Floor 2	M	Stratigraphy
4-96	1015.5N/1008.5E	Zone E	M	Stratigraphy
4-98	1099N/1033E	Zone B	L	Whiteware
4-99	1099N/1033E	Zone C	M	Stratigraphy
4-100	1034.5N/1044E	Area 1	L	Stratigraphy
4-101	1034.5N/1044E	Area 3	M	Stratigraphy
4-102	1034.5N/1044E	Area 4	M	Stratigraphy
4-103	1034.5N/1044E	Area 5	M	Stratigraphy
4-104	1034.5N/1044E	Zone I	M	Stratigraphy
4-105	1034.5N/1044E	Zone J	M	Stratigraphy
4-106	1034.5N/1044E	Zone K	M	Stratigraphy
4-107	1034.5N/1044E	Zone L	M	Stratigraphy
4-108	1034.5N/1044E	Zone M	M	Stratigraphy
4-109	1034.5N/1044E	Feature 2	M	18th C. majolica
4-110	1017N/1009E	Zone D3	M	Stratigraphy
4-111	1017N/1009E	Zone E	M	Stratigraphy
4-112	1017N/1009E	Zone E1	M	Stratigraphy
4-113	1017N/1009E	Zone E2	M	Stratigraphy
4-114	1017N/1009E	Zone F	M	Stratigraphy
4-115	1017N/1009E	Zone G	M	Stratigraphy
4-116	1017N/1009E	Zone H	M	Stratigraphy
4-117	1017N/1009E	Area 3	M	Stratigraphy
4-118	1015.5N/1008.5E	Zone F	M	Stratigraphy
4-119	1015.5N/1008.5E	Zone G	M	Stratigraphy
4-120	1015.5N/1008.5E	Zone H	M	Stratigraphy
4-121	1015.5N/1008.5E	Zone I	M	Stratigraphy
4-122	1015.5N/1008.5E	Area 3	M	Stratigraphy
4-123	1015.5N/1008.5E	Area 4	M	Stratigraphy
4-124	1026.5N/1032E	Area 1	L	Whiteware
4-125	1026.5N/1032E	Area 2	M	Stratigraphy
4-126	1119N/1051.5E	Zone A	L	Whiteware
4-127	1119N/1051.5E	Zone B	L	Ironstone
4-128	1026.5N/1032E	Zone B	M	Stratigraphy
4-129	1017N/1009E	Zone I	M	Stratigraphy
4-130	1017N/1009E	Zone J	PC	neckless olla
4-131	1017N/1009E	Wall fill	M	Stratigraphy
4-132	1015.5N/1008.5E	Zone J	M	Stratigraphy
4-133	1015.5N/1008.5E	Feature 7	M	Botanicals

4-135	1015.5N/1008.5E	Zone K	PC	Fiber tempered
4-136	1171N/1030E	Zone A	L	Ironstone
4-137	1136N/1019E	Zone B	L	Ironstone
4-138	1136N/1019E	Zone C	M	Stratigraphy
4-139	1116N/1017E	Zone B	L	wire nail
4-140	1116N/1017E	Zone C	L	Whiteware
4-141	1116N/1017E	Zone C2	PC	neckless olla
4-142	1116N/1017E	Zone D	PC	neckless olla
4-143	1136N/1019E	Builders Tr. 1	M	Stratigraphy
4-144	1136N/1019E	Zone D	M	Stratigraphy
4-145	1116N/1017E	Feature 8	PC	Stratigraphy
4-147	1171N/1030E	Area 1	L	Ger. matchbox
4-148	1171N/1030E	Zone B	L	pocketknife
4-149	1171N/1030E	Zone C	M	Stratigraphy
4-150	1171N/1030E	Zone D	M	Stratigraphy
4-151	1171N/1030E	Zone E	M	Stratigraphy
4-152	1171N/1030E	Zone F	M	Stratigraphy
4-154	1171N/1030E	Builder's Tr. 1	M	Stratigraphy
4-155	1171N/1030E	Zone G	M	Stratigraphy
4-156	1171N/1030E	Zone H	M	Stratigraphy
4-157	1171N/1030E	Zone I	M	Stratigraphy
4-158	1171N/1030E	Zone J	M	Stratigraphy
4-160/183	1159N/1034E	Area 2	L	Stratigraphy
4-161	1159N/1034E	Zone B	L	Stratigraphy
4-162	1159N/1034E	Zone C	L	Annular Ware
4-163	1159N/1034E	Zone D	PC	Volcanic ash
4-165	1031.5N/1020E	Zone B	L	Ironstone
4-166	1031.5N/1020E	Zone C	L	Whiteware
4-167/185	1031.5N/1020E	Zone D	M	Stratigraphy
4-168	1031.5N/1020E	Zone E	M	Stratigraphy
4-169	1031.5N/1020E	Wall fill	M	Stratigraphy
4-170	1171N/1030E	Floor 1 Lev. 2	M	Stratigraphy
4-171	1171N/1030E	Floor 1 Lev. 3	M	Stratigraphy
4-173	1151N/1033E	Level 1	L	1900 news
4-174	1151N/1033E	Oven, Level 1	L	1900 news
4-175	1151N/1033E	Oven, Level 2	L	Stratigraphy
4-176	1151N/1033E	Area 1	L	Stratigraphy
4-177	1151N/1033E	Area 3	L	Stratigraphy
4-178	1151N/1033E	Area 4	L	Stratigraphy
4-179	1151N/1033E	Area 5	L	Stratigraphy
4-180	1159N/1034E	Zone A	L	Stratigraphy
4-181	1159N/1034E	Zone E	PC	neckless olla
4-182	1159N/1034E	Zone F	PC	neckless olla
4-184	1159N/1034E	Area 3	PC	Stratigraphy
4-186	1031.5N/1020E	Builder's Tr. 1	M	Stratigraphy
4-187	1031.5N/1020E	Zone F	M	Stratigraphy

4-188	1171N/1030E	Floor 2 Lev. 1	M	Stratigraphy
4-189	1171N/1030E	Floor 2 Lev. 2	M	Stratigraphy
4-191	1151N/1033E	Area 2	L	1892 paper
4-192	1151N/1033E	Area 6	L	1863 coin
4-193	1151N/1033E	Area 7	L	Stratigraphy
4-194	1151N/1033E	Area 8	L	Stratigraphy
4-195	1151N/1033E	Area 9	L	Stratigraphy
4-196	1151N/1033E	Oven, Level 3	L	Pearlware
4-197	Lime Proc. Area	Feature 9	L	Stratigraphy

FS#	Excavation Unit	Prov.	Period	Chron. marker
Locumbilla Bodega				
19-1101	958N/993E	Zone B	L	Stratigraphy
19-1102	958N/993E	Zone C	L	Stratigraphy
19-1103	958N/993E	Zone D	M	Stratigraphy
19-1104	958N/993E	Zone E	M	Stratigraphy
19-1105	958N/993E	Zone F	M	Stratigraphy
19-1106	958N/993E	Zone G	M	Stratigraphy
19-1107	1010N/1040E	Zone A	L	wire nail
19-1108	1010N/1040E	Area 1	L	wire nail
19-1109	1010N/1040E	Zone B	L	Stratigraphy
19-1110	1010N/1040E	Zone C	M	Stratigraphy
19-1111	1010N/1040E	Zone D	M	Stratigraphy
19-1112	1010N/1040E	Zone E	M	Stratigraphy
19-1113	1010N/1040E	Zone F	M	Stratigraphy
19-1114	1010N/1040E	Zone G	M	Stratigraphy
19-1115	1010N/1040E	Zone H	M	Stratigraphy
19-1116	1010N/1040E	Area 2	M	Stratigraphy
19-1117	1010N/1040E	Zone I	M	Stratigraphy
19-1118	1010N/1040E	Area 3	M	Stratigraphy
19-1119	1010N/1040E	Zone K	M	Stratigraphy
19-1120	959.5N/1052E	Zone A	L	Whiteware
19-1121	959.5N/1052E	Zone B	L	Amethyst glass
19-1122	1010N/1040E	Zone J	M	Stratigraphy
19-1123	1010N/1040E	Zone L	M	Stratigraphy
19-1124	1010N/1040E	Zone M	M	Stratigraphy
19-1125	1010N/1040E	Zone N	M	Stratigraphy
19-1126	1010N/1040E	Fea. 1 Lev. 1	M	Stratigraphy
19-1127	1010N/1040E	Fea. 1 Lev. 2	M	Stratigraphy
19-1128	1010N/1040E	Fea. 1 Lev. 3	M	Stratigraphy
19-1129	959.5N/1052E	Zone C	M	Stratigraphy
19-1130	959.5N/1052E	Zone D	M	Stratigraphy
19-1131	959.5N/1052E	Zone E	M	Stratigraphy
19-1132	959.5N/1052E	Zone G	E	Strat.-below ash

19-1133	959.5N/1052E	Feature 2	E	Strat.-below ash
19-1134	959.5N/1052E	Post Hole 1	M	Stratigraphy
19-1135	959.5N/1052E	Feature 3	E	Strat.-below ash
19-1136	937N/1030E	Zone A	L	wire nail
19-1137	937N/1030E	Zone B	L	Whiteware
19-1138	937N/1030E	Zone C	L	Whiteware
19-1139	937N/1030E	Zone D	M	Stratigraphy
19-1140	980N/1061E	Zone A	M	Stratigraphy
19-1141	980N/1061E	Zone B	M	Stratigraphy
19-1142	980N/1061E	Zone C	M	Stratigraphy
19-1144	980N/1061E	Area 2	M	Stratigraphy
19-1145	980N/1061E	Zone D	M	Stratigraphy
19-1146	980N/1061E	Zone E	M	Stratigraphy
19-1147	980N/1061E	Zone F	M	Stratigraphy
19-1148	1000N/1020E	Zone A	L	1888 centavo
19-1149	1000N/1020E	Zone B	L	Stratigraphy
19-1150	1000N/1020E	Zone D	L	Whiteware
19-1151	1000N/1020E	Post Hole 1	L	Stratigraphy
19-1152	1000N/1020E	Zone E	L	Gaudy Dutch
19-1153	980N/1061E	Zone G	M	Stratigraphy
19-1154	980N/1061E	Zone I	E	Strat.-below ash
19-1155	980N/1061E	Area 3	E	Strat.-below ash
19-1156	980N/1061E	Zone J	E	Strat.-below ash
19-1157	984N/1032.5E	Zone A	L	Stratigraphy
19-1158	984N/1032.5E	Zone B1	L	Whiteware
19-1159	984N/1032.5E	Zone B2	L	Semi-porcelain
19-1160	984N/1032.5E	Zone C	L	1850 Boliv. coin
19-1161	1000N/1020E	Zone C	L	1830 Boliv. coin
19-1162	1000N/1020E	Zone F	M	Stratigraphy
19-1163	1000N/1020E	Zone G	M	Stratigraphy
19-1165	984N/1032.5E	Area 1	L	Stratigraphy
19-1166	984N/1032.5E	Zone D	L	Pearlware
19-1167	1003.5N/1040E	Zone B	M	Stratigraphy
19-1168	1000N/1020E	Zone H	M	Stratigraphy
19-1169	1000N/1020E	Zone I	M	Stratigraphy
19-1170	1000N/1020E	Zone J	M	Stratigraphy
19-1171	1000N/1020E	Zone K	M	Stratigraphy
19-1172/82	984N/1032.5E	Zone D2	L	Stratigraphy
19-1173	984N/1032.5E	Zone E	L	Stratigraphy
19-1174	1000N/1020E	Zone L	M	Stratigraphy
19-1175	1003.5N/1040E	Zone C	M	Stratigraphy
19-1176	1003.5N/1040E	Zone D	M	Stratigraphy
19-1177	1003.5N/1040E	Zone F	M	Stratigraphy
19-1178	1003.5N/1040E	Zone G	M	Stratigraphy
19-1179	984N/1032.5E	Zone F	L	Pearlware
19-1180	984N/1032.5E	Fea. 6 Lev. 1	L	Whiteware

19-1181	1003.5N/1040E	Zone E	M	Stratigraphy
19-1183	961.5N/1001E	Zone B	L	Whiteware
19-1184	961.5N/1001E	Post Hole 1	L	Stratigraphy
19-1185	961.5N/1001E	Area 2	L	Stratigraphy
19-1188	984N/1032.5E	Zone G	M	Stratigraphy
19-1189	984N/1032.5E	Zone H	M	Stratigraphy
19-1191	942.5N/1026.5E	Zone B	L	Pearlware
19-1192	942.5N/1026.5E	Fea. 7a	L	glass button
19-1193	942.5N/1026.5E	Fea. 7b Lev.1	L	Stratigraphy
19-1194	942.5N/1026.5E	Fea. 7b Lev.2	L	Pearlware
19-1195	942.5N/1026.5E	Fea. 7b Lev.3	L	Whiteware
19-1196	984N/1032.5E	Zone I	M	Porcelain
19-1197	984N/1032.5E	Zone J	M	Stratigraphy
19-1198	984N/1032.5E	Fea. 6 Lev. 2	M	Stratigraphy
19-1199	961.5N/1001E	Zone C	L	Stratigraphy
19-1200	961.5N/1001E	Zone D	M	Stratigraphy
19-1201	961.5N/1001E	Zone E	M	Spanish coin
19-1202	961.5N/1001E	Post Hole 3	M	Stratigraphy
19-1203	961.5N/1001E	Area 3	M	Whiteware
19-1204	961.5N/1001E	Area 4	M	Stratigraphy
19-1205	961.5N/1001E	Zone F	M	Stratigraphy
19-1206	961.5N/1001E	Zone G	M	Stratigraphy
19-1207	961.5N/1001E	Zone H	M	Stratigraphy
19-1208	961.5N/1001E	Post Hole 4	M	Stratigraphy
19-1209	961.5N/1001E	Post Hole 5	M	Stratigraphy
19-1210	961.5N/1001E	Area 6	M	Stratigraphy
19-1211	961.5N/1001E	Area 7	M	Stratigraphy
19-1212	961.5N/1001E	Area 8	M	Stratigraphy
19-1213	961.5N/1001E	Area 9	M	Stratigraphy
19-1214	942.5N/1026.5E	Zone C	L	Whiteware
19-1215	942.5N/1026.5E	Zone D	M	Stratigraphy
19-1216	942.5N/1026.5E	Fea. 7a Lev.2	M	Stratigraphy
19-1217	942.5N/1026.5E	Fea. 7b Lev.4	M	Stratigraphy
19-1218	961.5N/1050E	Zone B	M	Stratigraphy
19-1219	961.5N/1050E	Zone C	M	Stratigraphy
19-1220	961.5N/1050E	Zone D	M	Stratigraphy
19-1221	961.5N/1001E	Zone I	M	Stratigraphy
19-1222	959.5N/1019E	Zone B	M	Stratigraphy
19-1223	959.5N/1019E	Zone C	M	Stratigraphy
19-1224	959.5N/1019E	Area 1	M	Stratigraphy
19-1225	961.5N/1050E	Zone E	M	Stratigraphy
19-1227	961.5N/1050E	Zone G	E	Strat.-below ash
19-1228	961.5N/1050E	Area 1	E	Strat.-below ash
19-1229	961.5N/1050E	Area 2	E	Strat.-below ash
19-1230	946N/1039E	Floor 1	M	Stratigraphy
19-1231	946N/1039E	Zone A	M	Stratigraphy

19-1232,3,4	959.5N/1019E	Zone D	M	Stratigraphy
19-1235	928.5N/1007E	Zone A	L	Pearlware
19-1236	928.5N/1007E	Zone B	L	Semi-porcelain
19-1331	959.5N/1028.5E	Level 2	L	Whiteware
19-1332	959.5N/1028.5E	Level 3	L	Whiteware
19-1333	959.5N/1028.5E	Level 4	L	Whiteware
19-1334	959.5N/1028.5E	Area 1	L	Whiteware
19-1335	948.5N/1045.5E	Level 1	L	Pearlware
19-1336	948.5N/1045.5E	North Wall	L	Pearlware
19-1341	948.5N/1045.5E	Zone A1	L	Pearlware
19-1346	948.5N/1045.5E	Zone B	L	Stratigraphy
19-1352	959.5N/1028.5E	Area 2	M	Stratigraphy
19-1354	959.5N/1028.5E	Zone A	M	Stratigraphy
19-1356	953.5N/1059.5E	Zone A	L	Ironstone
19-1358	953.5N/1059.5E	Area 2	M	Stratigraphy
19-1368	948.5N/1045.5E	Zone A3	L	Pearlware
19-1369	948.5N/1045.5E	Zone A2	L	Amethyst glass
19-1370	948.5N/1045.5E	Zone B3	L	Ironstone
19-1371	948.5N/1045.5E	Zone B2	L	Stratigraphy
19-1373	948.5N/1045.5E	Area 1	M	Stratigraphy
19-1375	948.5N/1045.5E	Area 4	M	Stratigraphy
19-1376	948.5N/1045.5E	Floor 1 Lev. 1	M	Stratigraphy
19-1377	948.5N/1045.5E	Floor 1 Lev. 2	M	Stratigraphy
19-1378	948.5N/1045.5E	Builder's Tr. A	M	Stratigraphy
19-1383	953.5N/1059.5E	Zone B	M	Stratigraphy
19-1385	959.5N/1028.5E	Zone B	M	Stratigraphy
19-1386	948.5N/1045.5E	Builder's Tr. B	M	Stratigraphy
19-1387	948.5N/1045.5E	South Wall fill	L	Whiteware
19-1388	948.5N/1045.5E	Zone D	M	Stoneware
19-1408	948.5N/1045.5E	Area 6	E	volc. ash lens
19-1409	948.5N/1045.5E	Zone E	M	Stoneware
19-1411	948.5N/1045.5E	North Wall L1	M	Stratigraphy
19-1424	953.5N/1045.5E	Zone B	M	Stratigraphy
19-1425	953.5N/1045.5E	Zone C	M	Stratigraphy
19-1426	953.5N/1045.5E	Zone D	M	Stratigraphy
19-1427	953.5N/1045.5E	Zone G	E	Strat.-below ash
19-1428	953.5N/1045.5E	Area 1	M	Stratigraphy
19-1429	953.5N/1045.5E	Area 2	E	volc. ash lens
19-1430	953.5N/1045.5E	Area 3	E	Strat.-below ash
19-1436	953.5N/1059.5E	Zone C	M	Stratigraphy
19-1437	953.5N/1059.5E	Zone D	E	Strat.-below ash
19-1444	948.5N/1045.5E	Zone F	E	Strat.-below ash
19-1492	953.5N/1048E	Post Hole 5	L	Stratigraphy
19-1493	961.5N/1046.5E	Level 2	L	Whiteware
19-1494	961.5N/1046.5E	Level 3	M	French seal
19-1495	961.5N/1046.5E	Zone A	M	Stratigraphy

19-1496	962.5N/1056.5E	Zone A	M	Stratigraphy
19-1497	962.5N/1056.5E	Zone B	M	Stratigraphy
19-1498	962.5N/1056.5E	Hearth 1	M	Stratigraphy
19-1499	969.5N/1051.5E	Level 2	L	Ironstone
19-1500	953.5N/1048E	Post Hole 2	L	Gaudy Dutch
19-1501	962.5N/1056.5E	Area 2	M	Stratigraphy
19-1502	962.5N/1056.5E	Area 3	M	Stratigraphy
19-1504	961.5N/1046.5E	Floor 1	M	Stratigraphy
19-1505	953.5N/1048E	Floor 1	M	Stratigraphy
19-1506	953.5N/1048E	Zone A	M	Stratigraphy
19-1507	969.5N/1051.5E	Wall 1	M	Stratigraphy
19-1508	962.5N/1056.5E	Floor 1	M	Stratigraphy
19-1509	961.5N/1046.5E	Area 1	E	Volcanic ash
19-1510	961.5N/1046.5E	Area 2	E	Strat.-below ash
19-1511	961.5N/1046.5E	Zone B	E	Strat.-below ash
19-1512	961.5N/1046.5E	Zone C	E	Strat.-below ash
19-1513	953.5N/1048E	Zone B	M	Stratigraphy
19-1514	969.5N/1051.5E	Floor 1	M	Stratigraphy
19-1515	962.5N/1056.5E	Area 5	E	Volcanic ash
19-1523	953.5N/1048E	Zone C	M	Stratigraphy
19-1524	962.5N/1056.5E	Wall 1, N/S	M	Stratigraphy
19-1525	969.5N/1051.5E	Floor 2	M	Stratigraphy
19-1526	961.5N/1046.5E	Floor 2	E	Strat.-below ash
19-1528	962.5N/1056.5E	Floor 2	E	Strat.-below ash
19-1529	962.5N/1056.5E	Area 6	E	Strat.-below ash
19-1530	962.5N/1056.5E	Post Hole 1	E	Strat.-below ash
19-1531	962.5N/1056.5E	Hearth 2	E	Strat.-below ash
19-1532	957.5N/1061.5E	Zone A	M	Stratigraphy
19-1533	957.5N/1061.5E	Zone B	M	Stratigraphy
19-1534	957.5N/1061.5E	Zone C	M	Stratigraphy
19-1535	954.5N/1050.5E	Floor 1	L	1890s paper
19-1536	954.5N/1050.5E	Zone A	M	Stratigraphy
19-1537	954.5N/1050.5E	Zone B	M	Stratigraphy
19-1539	957.5N/1061.5E	Area 1	M	Stratigraphy
19-1547/58	954.5N/1050.5E	Str2, E/W, L1	M	Stratigraphy
19-1548	954.5N/1050.5E	Str2, N/S, L1	M	Stratigraphy
19-1549	957.5N/1061.5E	Zone D	M	Stratigraphy
19-1550	957.5N/1061.5E	Zone E	M	Stratigraphy
19-1551	957.5N/1061.5E	Zone F	M	Stratigraphy
19-1552	957.5N/1061.5E	Area 2	M	Stratigraphy
19-1557	954.5N/1050.5E	Zone C	M	Stratigraphy
19-1559	954.5N/1050.5E	Str 2, E/W, L2	M	Stratigraphy
19-1560	955.5N/1048E	Zone A	M	Stratigraphy
19-1561	955.5N/1048E	Zone B	M	Stratigraphy
19-1562	957.5N/1050.5E	Floor 2	M	Stratigraphy
19-1563	968N/1049E	Zone A	L	Pearlware

19-1564	968N/1049E	Zone B	M	Stratigraphy
19-1565	955.5N/1048E	Floor 2	M	Stratigraphy
19-1566	957.5N/1050.5E	Zone A	M	Stratigraphy
19-1567	957.5N/1050.5E	Floor 1	M	Stratigraphy
19-1568	957.5N/1050.5E	Area 1	M	Stratigraphy
19-1569	968N/1049E	Floor 1	M	Stratigraphy
19-1570	968N/1049E	Floor 2	M	Stratigraphy
19-1571	968N/1049E	Zone C	M	Stratigraphy
19-1572	955.5N/1048E	Adobe Wall	M	Stratigraphy
19-1573	Elbow Tr. E/W pt.	Zone G	M	Stratigraphy
19-1574	Elbow Tr. E/W pt.	Zone H	M	Stratigraphy
19-1575	Elbow Tr. E/W pt.	Area 2	M	Stratigraphy
19-1576	Elbow Tr. E/W pt.	Area 3	M	Stratigraphy
19-1577	Elbow Tr. E/W pt.	Area 4	M	Stratigraphy
19-1578	Elbow Tr. E/W pt.	Area 5	M	Stratigraphy
19-1579	Elbow Tr. E/W pt.	Area 6	M	Stratigraphy
19-1583	Block Excavation	Hearth 2	E	Strat.-below ash
19-1584	Elbow Tr. N/S	Zone B	E	Volc. ash
1601				
19-1585	957.5N/1061.5E	Str 2, E/W L1	M	Stratigraphy
19-1586	957.5N/1061.5E	Str 2, E/W L2	M	Stratigraphy
19-1587	957.5N/1061.5E	Area 3	M	Stratigraphy
19-1588	Block Excavation	Zone D	E	Volc. ash
19-1589	Block Excavation	Zone E	E	Volc. ash
19-1595	Elbow Tr. E/W pt.	Str 2 doorfill	M	Stratigraphy
19-1597	957.5N/1061.5E	Zone G	E	Volc. ash
19-1598	957.5N/1061.5E	Area 4	E	Strat.-below ash
19-1599	957.5N/1061.5E	Zone H	E	Strat.-below ash
19-1600	Elbow Tr. E/W pt.	Zone I	E	Strat.-below ash
19-1602	Elbow Tr. N/S pt.	Zone C	E	Strat.-below ash
19-1603	Elbow Tr. N/S pt.	Zone D	E	Strat.-below ash
19-1604	Elbow Tr. N/S pt.	Post Hole 1	M	Stratigraphy
19-1605	Elbow Tr. N/S pt.	Str 2, Bldg. Tr	M	Stratigraphy
19-1606	959.5N/1048E	Floor 1	M	Stratigraphy
19-1607/13	959.5N/1048E	Floor 2	E	Stratigraphy
19-1608	959.5N/1048E	Post Hole 1	M	Stratigraphy
19-1609	959.5N/1048E	Post Hole 2	M	Stratigraphy
19-1610	959.5N/1048E	Post Hole 3	M	Stratigraphy
19-1611	959.5N/1048E	Zone A	M	Stratigraphy
19-1612	959.5N/1048E	Zone B	M	Stratigraphy
19-1615	959.5N/1048E	Zone C	E	Volc. ash
19-1616	959.5N/1048E	Zone D	E	Strat.-below ash
19-1618	Block Excavation	Floor 3	E	Strat.-below ash
19-1619	Block Excavation	Zone F	E	Strat.-below ash
19-1621	952.25N/1072E	Level 2	M	Stratigraphy
19-1622	952.25N/1072E	Zone A	M	Stratigraphy

19-1623	952.25N/1072E	Area 1	M	Stratigraphy
19-1624	975.5N/1050E	Floor 1	L	Whiteware
19-1625	975.5N/1050E	Post Hole 1	L	Stratigraphy
19-1626	975.5N/1050E	Zone A	L	Whiteware
19-1627	975.5N/1050E	Zone B	M	Stratigraphy
19-1637	952.25N/1072E	Zone C	E	Strat.-below ash
19-1638	952.25N/1072E	Zone D	E	Strat.-below ash
19-1640	952.25N/1072E	Zone E	E	Strat.-below ash
19-1641	952.25N/1072E	Zone B1	M	Stratigraphy
19-1642	952.25N/1072E	Zone B2	M	Stratigraphy

FS#	Excavation Unit	Prov.	Period	Chron. marker
Yahuay Bodega				
27-3	Arch 10	Zone A2	M	Stratigraphy
27-4	Arch 10	Zone A1	L	Whiteware
27-5	1026N/937E	Zone A	L	Whiteware
27-6	1026N/937E	Floor 2	L	Whiteware
27-7	1026N/937E	Zone B	M	Stratigraphy
27-8	1026N/937E	Zone C	M	Stratigraphy
27-9	Arch 10	Floor 1 Lev. 1	M	Stratigraphy
27-10	Arch 10	Area 1	M	Stratigraphy
27-11	Arch 10	Zone B	M	Stratigraphy
27-12/27	Arch 10	Area 2	M	Stratigraphy
27-13	Arch 10	Zone C	M	Stratigraphy
27-14	1024N/931E	Zone A	M	Stratigraphy
27-15	1024N/931E	Zone B	M	Stratigraphy
27-16	Arch 10	Floor 1 Lev. 2	M	Stratigraphy
27-17	Arch 10	Floor 1 Lev. 3	M	Stratigraphy
27-18	Arch 2	Level 1	L	Ironstone
27-19	Arch 2	Zone A	L	Semi-porcelain
27-20	Arch 2	Zone B	M	Stratigraphy
27-21	Arch 2	Zone C	M	Stratigraphy
27-23	1003N/945.5E	Level 2	L	Ironstone
27-24	1003N/945.5E	Zone A	L	Ironstone
27-25	1024N/931E	Area 1	M	Stratigraphy
27-26	Arch 10	Trench 1	M	Stratigraphy
27-28	989N/933E	Level 2	M	Stratigraphy
27-29	989N/933E	Zone A	M	Stratigraphy
27-30	999N/973.5E	Level 1	L	Stratigraphy
27-31/39	999N/973.5E	Level 2	L	Whiteware
27-32	990N/958.5E	Zone A	L	1877 coin
27-33	990N/958.5E	Area 1	M	Disturbed
27-34	990N/958.5E	Area 2	M	Disturbed
27-35	990N/958.5E	Zone B	M	Disturbed

27-36	989N/933E	Area 1	M	Stratigraphy
27-37	989N/933E	Area 2	M	Stratigraphy
27-38	989N/933E	Zone B	M	Stratigraphy
27-40	999N/973.5E	Zone A	M	Whiteware
27-41	1024.5N/987E	Zone A	M	Stratigraphy
27-42	990N/958.5E	Zone A2	L	1875 coin
27-43	990N/958.5E	Area 3	M	Stratigraphy
27-44	990N/958.5E	Zone C	M	Stratigraphy
27-46	993.5N/980.5E	Zone A	M	Stratigraphy
27-47	990N/958.5E	West profile	--	--
27-50	989N/933E	Zone C	M	Stratigraphy
27-51	993.5N/980.5E	Area 1	M	Stratigraphy
27-52	993.5N/980.5E	Area 2	M	Stratigraphy
27-53	993.5N/980.5E	Area 3	M	Stratigraphy
27-54	993.5N/980.5E	Zone B	M	Stratigraphy
27-55	993.5N/980.5E	Area 6	M	Porcelain
27-56	993.5N/980.5E	Builder's Tr. 1	M	Stratigraphy
27-58	1002N/990E	Level 1	M	musket ball
27-59/62	1002N/990E	Zone A	M	Stratigraphy
27-60	1002N/990E	Area 1	M	Stratigraphy
27-61	1002N/990E	Area 2	M	Stratigraphy
27-63	1002N/990E	Zone B	M	Stratigraphy
27-64	993.5N/980.5E	Area 4	M	Stratigraphy
27-65	993.5N/980.5E	Area 5	M	Stratigraphy
27-66	993.5N/980.5E	Area 7	M	Stratigraphy
27-67	993.5N/980.5E	Area 8	M	Stratigraphy
27-68	993.5N/980.5E	Zone C	M	Stratigraphy
27-69	993.5N/980.5E	Zone D	M	Stratigraphy
27-80	993.5N/980.5E	Floor 1	M	Stratigraphy
27-81	993.5N/980.5E	Zone E	M	Stratigraphy

FS#	Excavation Unit	Prov.	Period	Chron. marker
Estopacaje Bodega				
28-1	1016.5N/993E	Zone B	L	Ironstone
28-2	1016.5N/993E	Zone C	L	Whiteware
28-3	1002N/985E	Zone B	L	Ironstone
28-4	1002N/985E	Zone C	L	Whiteware
28-5	1002N/985E	Zone D	M	Faience
28-6	1002N/985E	Zone E	M	Stratigraphy
28-7	1005.5N/997E	Zone B	L	Whiteware
28-8	1005.5N/997E	Zone C	L	Ironstone
28-9	1005.5N/997E	Zone D	L	1877 coin
28-10	1005.5N/997E	Builder's Tr. 1	L	Pearlware

APPENDIX B:
CODING VALUES FOR DATA CATEGORIES AND SUBCATEGORIES

01) Tin Enameled Pottery
- 01 Escapalaque
- 02 Mas Alla
- 03 Panamanian
- 04 Valle Ware
- 05 Sevilla
- 06 Faience
- 07 Delft
- 08 Unidentified
- 09 Tin-Enameled/Lead Glazed

02) Lead-Glazed Coarse Earthenware
- 01 Storage Jar
- 02 Lead-Glazed Coarse Earthenware
- 03 Cuy Lead Glazed

03) Coarse Earthenware
- 01 Cuy Plain
- 02 Plain Coarse Earthenware
- 03 Painted Coarse Earthenware
- 04 Red Slipped
- 05 incised/punctated

04) Stoneware, Porcelain
- 01 Brown Saltglazed Stoneware
- 02 Porcelain
- 03 Stoneware

05) Other European
- 01 Pearlware, plain
- 02 Whiteware, plain
- 03 Annularware
- 04 Hand Painted Pearlware
- 05 Transfer printed Pearlware
- 06 Transfer printed Whiteware
- 07 Gaudy Dutch
- 08 Semiporcelain

09 Shell-edged Pearlware
10 Mocha
11 Ironstone
12 Creamware
13 Unidentified

06) Pre-Colonial Artifacts
01 Lithics
02 Fiber Tempered Pottery
03 Coarse Earthenware, plain
04 Painted Coarse Earthenware
05 wooden kero fragment

07) Glass
01 green
02 olive
03 clear
04 amethyst
05 blue
06 brown
07 blue green
08 adorno
09 other
10 clear/blue rim

08) Tableware
01 knife
02 spoon
03 fork
04 wooden handle
05 iron kettle fragment
06 bone handle
07 wooden tureen
08 pewter handle

09) Wood Construction
01 nails, unidentified
02 spikes, cut
03 u-shaped fastener
04 hinge
05 screws
06 lock fragment
07 furniture hardware
08 other
09 wrought nails
10 wire nails

11 brass tack
12 door fragment
13 cut iron nail
14 cut brass nail
15 wrought copper
16 wrought spike
17 door appendage
18 iron railroad spike
19 wooden window dowel
20 wire spike

10) Masonry Construction (weighed)
01 mortar
02 brick
03 cut limestone
04 painted plaster

11) Clothing, Textile, Adornment
01 fabric
02 cordage
03 bead
04 jewelry
05 button
06 buckle
07 aglet
08 shoe leather
09 belt
10 hat
11 hook and eye
12 canvas oil painting

12) Personal
01 coin
02 comb
03 key
04 religious
05 pipe
06 matches
07 unidentified object fragment
08 cigarette pack fragment
09 metal box
10 coca bag
11 pocketknife
12 leather knife sheath

13) <u>Activities</u>
- 01 toys
- 02 sewing
- 03 musical instrument
- 04 gaming disc

14) <u>Industrial items, tools</u>
- 01 barrel parts
- 02 corks
- 03 wooden stopper
- 04 kiln furniture
- 05 baling seal
- 06 tools
- 07 grinding apparatus, copper
- 08 botija plugs, gourd
- 09 other
- 10 mechero ware

15) <u>Byproducts, Industrial substances, Processing materials</u> (weighed)
- 01 scoria
- 02 lime
- 03 lead
- 04 pitch
- 05 slag

16) <u>Fauna</u> (weighed)

17) <u>Shell</u> (weighed)

18) <u>Grapes</u> (weighed)

19) <u>Other Organic Material</u> (see Appendices E and F)

20) <u>Unidentified Metal Fragments</u>
- 01 iron fragment
- 02 iron sheet
- 03 iron object
- 04 wire
- 05 iron strap
- 06 tube, metal alloy
- 07 copper fragment
- 08 copper loop
- 09 brass fragment
- 10 copper fragment

11 copper sheet
12 lead fragment
13 lead sheet
14 ring, metal alloy
15 brass disc

21) Tinaja (weighed)

22) Botija (weighed)

23) Twentieth Century Material

24) Miscellaneous Substances (weighed)
01 sulphur
02 coal
03 unidentified burned
04 clay
05 mica

25) Weaponry
01 musketball
02 bullet, lead
03 shell casing
04 flint, honey-colored

26) Horse Hardware
01 iron shoe
02 iron nail
03 iron bit
04 iron saddle loop

APPENDIX C:
TYPE DESCRIPTION OF CUY PLAIN POTTERY

Ware: Moquegua Valley Coarse Earthenware
Group: Utilitarian Domestic
Type: Cuy Plain
Frequency: 4,478 sherds
Date: late 16th century

Identifying Characteristics: Thin-walled (3-7 mm), plain vessels that are usually heavily sooted on the exterior.

Paste and Technology: The paste is 2.5YR 5/8 red with abundant mineral inclusions less than 1 mm in diameter. Mineral inclusions of 1-3 mm in diameter are also common both within the paste and along the surface. Vessels were formed by hand; no coiling fractures noted.

Surface Treatment and Decoration: The surfaces of vessels are very irregular and poorly smoothed. Surface color is 2.5YR 6/6 light red. Mineral inclusions are visible throughout the interior and exterior surface area, and pockmarks and horizontal draglines are common on the exterior. Surfaces are almost always undecorated, although one sherd (19-1129 mended to 19-1130) was found to be a reed-punctated strap handle fragment.

Forms and Dimensions: Collared ollas with a 14-16 cm everted lip diameter are the most common vessel form. On these, strap handles are present below the lip that measure 1.5-2.5 cm wide and 2.5-3 cm in height. A single excurvate rim sherd (19-1152) with a lip diameter of 18 cm was found that represents a variation on this basic shape.

Pitchers have been noted in only three fragments (27-55 and 2 from 19-1109) that bear a spout measuring roughly 9 cm long by 7 cm wide.

A third form, that a of a tostador used for toasting corn, has been noted from several sherds. These measure approximately 20 cm tall by 25 cm wide and are ovoid in profile. An oval-shaped opening (approx. 15 cm wide by 7.5 tall) allows access to the vessel interior. At the top of the vessel is a strap handle that measures 10 by 2.5 cm.

References: Rice, P.M.
1990 Colonial Ceramics of Moquegua.
Ms. in possession of the author.

APPENDIX D:
TYPE DESCRIPTION OF MECHERO PLAIN POTTERY

Ware: Moquegua Valley Coarse Earthenware
Group: Utilitarian Industrial
Type: Mechero Plain
Frequency: 1,694 sherds
Date: late 16th Century

Identifying Characteristics: Wide-mouthed, tall jars with large strap handles initiating at the lip. A red slip is present on the the lip exterior and the upper part of the vessel interior. The interior is usually encrusted with a very compact, burned encrustation that is concentrated in the circular base of the vessel.

Paste and Technology: Paste is friable, with abundant mineral inclusions less than 1 mm in diameter and abundant mica flecks of approximately 1 mm in diameter present throughout the paste. Mica flecks are normally visible on the vessel surface. Low-fired portions of the paste, which is 8-9 mm in thickness, are 5YR 2.5/2 dark reddish brown in color, while higher-fired portions of the vessel paste are 7.5YR 7/6 reddish yellow on the Munsell Scale. The vessels were manufactured by coiling, as noted from numerous coil fractures. Surface color ranges from 7.5YR 6/4 light brown to 7.5YR 5/4 brown in color.

Surface Treatment and Decoration: The exterior surface of vessels is uneven and not well smoothed, with irregularities like finger impressions common. The upper 5-7 cm of the interior (that part not encrusted with carbonaceous material) is poorly burnished and covered by a red slip with a Munsell reading of 10Y 4/8. Red slip also covers approximately 1 cm of the lip exterior.

Forms and Dimensions: The vessels are large open-mouthed jars that measure 62-72 cm in height, with a diameter at the mouth of 43 cm. Vessel midsections are wider than both the base and the mouth. Bases are flat and circular, with a diameter of 13 cm. Strap handles were molded directly onto the lip of the vessel, with dimensions of 14 cm in length, 7 cm width at both top and bottom of the strap, and a narrower midsection of 4.5 cm.

References: Rice, P.M.
1990 Colonial Ceramics of Moquegua. Ms. in possession of the author.

APPENDIX E:
NATIVE PLANT SPECIES FROM EXCAVATIONS
(as identified by John G. Jones 1989)

C = Chincha E = Estopacaje L = Locumbilla Y = Yahuay

Identification	English name	Spanish name	Sites recovered			
Lagenaria siceraria	gourd	mate	C		L	Y
Cucurbita maxima	squash	zapallo	C	E	L	Y
Cucurbita moschata	squash	lacayote	C	E	L	Y
Capsicum bacatum	rocoto pepper	rocoto			L	
Capsicum annuum	chili pepper	ají	C		L	Y
Zea mays	corn	maíz	C		L	Y
Phragmites communis	cane	caña, carrizo	C		L	Y
Phaseolus vulgaris	bean	frejol	C		L	
Prosopis sp.	mesquite	algorrobal	C			
Solanum tuberosum	potato	papa	C		L	
Anona cherimolia	custard apple	cherimoya	C	E	L	Y
Acacia sp.	acacia	huarango	C		L	Y
Cyperus sp.	sedge				L	
Caesalpinia sp.		tara	C			
Nearaimondia macrostibas	cactus				L	
Arachis hypogaea	peanut	mani	C	E	L	
Sapindus saponaria	soapberry	jaboncillo			L	Y
Inga feuillei		pacae			L	Y
Schinus molle	peppertree	molle			L	
Erythroxylum coca	coca	coca	C			
Typha angustifolia	cattail	totora			L	
Panicum sp.	grass	grama			L	
Datura sp.	datura	datura			L	Y
Persea americana	avocado	palta	C			
Asteraceae	sunflower family			C		
Salicaceae	willow family		C		L	Y
Fabaceae	bean family		C		L	Y
Poaceae	grass family		C		L	
Dicotyledoneae	hardwoods		C	E	L	Y
Gynerium sagitatum	cane	caña brava	C			
Equisetum sp.	horsetail	cola de caballo	C			

APPENDIX F:
INTRODUCED PLANT SPECIES FROM EXCAVATIONS
(as identified by John G. Jones 1989)

C = Chincha E = Estopacaje L = Locumbilla Y = Yahuay

Identification	English name	Spanish name	Sites recovered			
Vitis vinifera	grape	uva	C		L	Y
Ricinus communis	castor bean	higuerilla	C		L	Y
Citrullus vulgaris	watermelon	melón de agua	C		L	Y
Prunus persica	peach	melocotón	C	E	L	Y
Prunus armeniaca	apricot	albaricoque	C			
Olea europaea	olive	olivo	C	E	L	Y
Medicago sativa	alfalfa	alfalfa	C		L	Y
Ficus carica	fig	higuera	C		L	
Quercus sp.	oak	roble	C			
Phoenix sp.	date palm	palma	C			
Allium sativum	garlic	ajo	C			
Triticum sp.	wheat	trigo	C		L	Y
Juglans regia	walnut	nogal	C			
Punica granatum	pomegranate	granado	C			
Cicer arietinum	chick pea	garbanzo	C			
Vicia faba	faba bean	haba	C			
Prunus domestica	plum	ciruelo	C			
Opuntia ficus-indica	cactus	tuna			L	
Cucumis melo	cantelope	melón				Y
Citrus sp.	orange	naranja				Y
Bactris gasipaes		cocochileño	C		L	Y
Gymnospermae	softwoods		C		L	Y

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1593a Fletamento de vino.

1593b Obligación de heredados de Cochuna y Moquegua.

1594a Compañia para beneficiar viña.

1594b Compañia para labrar viña.

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BIOGRAPHICAL SKETCH

Greg Charles Smith was born and raised in Detroit, Michigan. After moving to Florida he developed an interest in historical archaeology while studying with Kathleen Deagan at Florida State University. There he received a B.A. in anthropology and interdisciplinary social sciences in 1978. During the next six years he gained varied field experience with a number of archaeological projects in Florida, Georgia, South Carolina, and Montana.

Since entering graduate school, Greg has worked at Puerto Real, Haiti, where his master's research was undertaken, and in Peru, where he was first given the opportunity to study Spanish Colonial settlement along the southern desert coast with Michael Moseley. Doctoral studies and his work at the wineries of Moquegua, both under the direction of Prudence Rice, began shortly thereafter.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy

Prudence M. Rice, Chair
Professor of Anthropology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Kathleen A. Deagan
Professor of Anthropology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Michael E. Moseley
Professor of Anthropology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Anthony Oliver-Smith
Associate Professor
of Anthropology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Lyle N. McAlister
Distinguished Service Professor
Emeritus of History

This dissertation was submitted to the Graduate Faculty of the Department of Anthropology in the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Dean, Graduate School